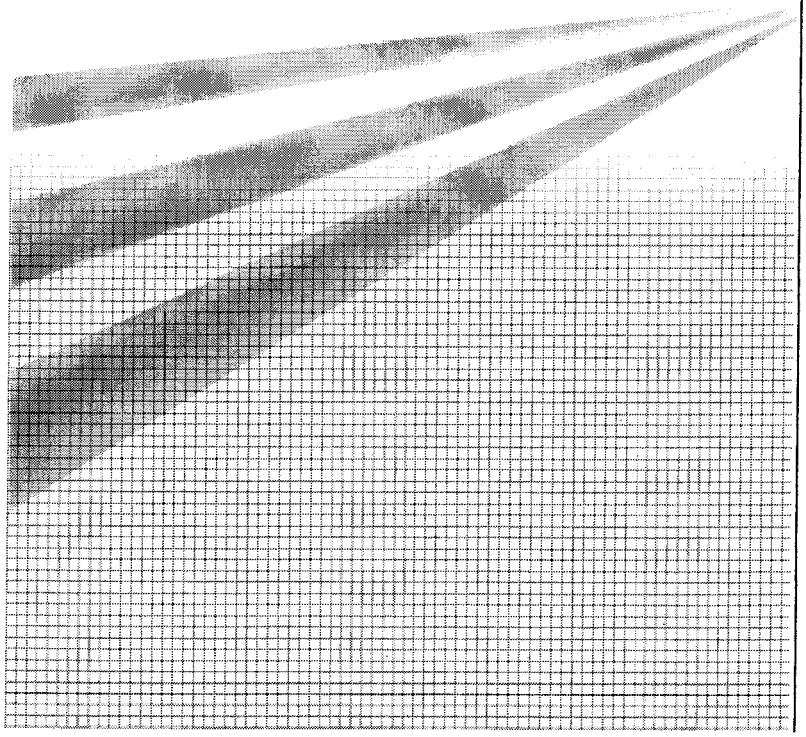
Silicon Valley Power
CITY OF SANTA CLARA

PICO POWER PROJECT



Supplement in Response to Data Adequacy Comments

on the

Application for Certification

for the

Pico Power Project

(02-AFC-03)

Silicon Valley Power

November 14, 2002

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Silicon Valley Power
CITY OF SANTA CLARA

November 14, 2002

Giving you the power

to change the world.

Mr. Steve Larson
Executive Director
California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Dear Mr. Larson:

In accordance with the provisions of Title 20, California Code of Regulations, Silicon Valley Power, the electrical department of the City of Santa Clara, hereby submits this *Supplement in Response to Data Adequacy Comments on the Application for Certification for the Pico Power Project (02-AFC-03).* This supplement provides additional information in response to requests by the California Energy Commission Staff as part of their evaluation of the data adequacy of the Application for Certification for the Pico Power Project, which was filed October 7, 2002.

As an officer Silicon Valley Power, I hereby attest, under penalty of perjury, that the contents of this supplement are truthful and accurate to the best of my knowledge.

Dated this 14th day of November, 2002.

Sincerely,

James H. Pope
Director of Electric Utility
Silicon Valley Power
City of Santa Clara, California

1500 Warburton Ave.

Santa Clara, CA 95050

Ph: (408) 261-5292

Fax: (408) 249-0217

Supplement in Response to Data Adequacy Comments

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Pico Power Project

Santa Clara, California

02-AFC-03

Submitted to the

California Energy Commission

Submitted by

City of Santa Clara/Silicon Valley Power

November 14, 2002

CONTENTS

1. INTRODUCTION

This supplement to Silicon Valley Power's Application for Certification (AFC) for the Pico Power Project (02-AFC-03), responds to comments that California Energy Commission (CEC) Staff have made on data adequacy worksheets that Staff have provided to Silicon Valley Power. The format for this supplement follows the order of the AFC, and provides additional information and responses to CEC information requests on Electrical Transmission (Chapter 6), Air Quality (Chapter 8.1), Biological Resources (Chapter 8.2), Cultural Resources (Chapter 8.3), Geological Resources and Hazards (Chapter 8.4), Socioeconomics (8.10), Soils and Agriculture (8.11), Visual Resources (Chapter 8.13), and Water Resources (Chapter 8.15). Only sections for which CEC Staff posed requests or questions related to data adequacy are addressed in this supplement. If the response calls for additional appended material, it is included at the end of each section.

6.0 ELECTRICAL TRANSMISSION

1. LORS compliance statement (6-month expedited process [§2022(b)(1)(A)]):

Information demonstrating that the project as proposed in the application will comply with all such standards, ordinances, and laws.

Information required to make AFC conform with regulations:

Need to state that project will comply with applicable laws, ordinances, regulations, and standards.

Response—The Pico Power Project will comply with all laws, ordinances, regulations, and standards pertaining to transmission system engineering. Section 6.4.1 and tables 6.4-1 through 6.4-7 list the applicable laws, ordinances, regulations, and standards.

2. List of Asssumptions (6-month expedited process [§2022(b)(3)(A)]):

An interconnection study identifying the electrical system impacts and a discussion of the mitigation measures considered and those proposed to maintain conformance with NERC, WSCC, Cal-ISO or other applicable reliability or planning criteria based on load flow, post transient, transient, and fault current studies performed by or for the transmission owner in accordance with all applicable Cal-ISO or other interconnection authority's tariffs, operating agreements, and scheduling protocols.

Information required to make AFC conform with regulations:

Please provide a list of assumptions used in the power flow analysis (base case, major path flows, etc.), load flow diagrams, and stability plots.

Response—Volume II of the AFC includes system impact studies conducted by PG&E and Silicon Valley Power as Appendices 6B and 6C, respectively. Load flow diagrams and stability plots are appended to these studies. Because of the sheer number of pages of diagrams and stability plots, these appendices were not included their entirety in Volume II. Instead, the load flow diagrams and stability plots were provided to CEC Staff under separate cover. The plots were provided to the CEC Staff at the time the AFC was filed as paper copy as well as in electronic format on a compact disk.

Table 6-S1 summarizes the base case used in the power flow analyses for both the PG&E and SVP system impact studies. PG&E provided the base case assumptions used in the SVP base case as described in the SVP system impact Study.

3. List of assumptions (12-month process [Appendix B(h)(2)(C)]):

A description of any electric transmission facilities, such as powerlines, substations, switchyards, or other transmission equipment, which will be constructed or modified to transmit electrical power from the proposed power plant to the load centers to be served by the facility. Such description shall include the width of rights of way and the physical and electrical characteristics of electrical transmission facilities such as towers, conductors, and insulators. This description shall include power load flow diagrams which demonstrate conformance or nonconformance with utility reliability and planning criteria at the time the facility is expected to be placed in operation and five years thereafter.

Table 6-S1. Powerflow base cases summary of key parameters (mw)

		Summer Peak		Summer Off-Peak	
		Pre	Post	Pre	Post
System Loads:					
PG&E System Load		24,557	24,557	12,369	12,369
PG&E San Jose Division		1,888	1,888	920	920
SVP		543	543	267	267
San Jose Division Generation:					
Metcalf Energy Center		600	600	600	600
Los Esteros Energy Center		304	304	186	186
SVP Gen:					
CCA		24	24	24	24
Cogen		6.6	6.6	6.6	6.6
Gianera		41.2	41.2	0	0
Pico CC		0	120	0	120
Major Path Flows:					
Path 66 –COI	(N-S)	3808	3808	555	555
Path 15	(N-S)	793	793	-919	-919
Path 26 - Midway to Vincent	(N-S)	3025	3025	1070	1070

Information required to make AFC conform with regulations:

Provide a list of assumptions used in the power flow analysis (base case, path flows, etc.) load flow diagrams, and stability plots.

Response—See response to Item #2, above.

4. LORS compliance statement (12-month process [Appendix B(h)(1)(A)]):

Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed.

Information required to make AFC conform with regulations:

Need to state that project will comply with applicable laws, ordinances, regulations, and standards.

Response—The Pico Power Project will comply with all laws, ordinances, regulations, and standards pertaining to transmission system engineering. Section 6..4.1 and tables 6.4-1 through 6.4-7 list the applicable laws, ordinances, regulations, and standards.

5. LORS compliance statement (12-month process [Appendix B(b)(h)(2)]):

A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).

Information required to make AFC conform with regulations:

Need to state that project will comply with applicable laws, ordinances, regulations, and standards.

Response—The Pico Power Project will comply with all laws, ordinances, regulations, and standards pertaining to transmission system engineering. Section 6.4.1 and tables 6.4-1 through 6.4-7 list the applicable laws, ordinances, regulations, and standards.

6. Permit schedule (12-month process [Appendix B(h)(4)]):

A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.

Information required to make AFC conform with regulations:

Indicate when preliminary and final interconnection approval are expected from the CA-ISO.

Response—Silicon Valley Power currently has an Interconnection Agreement with PG&E and a Metered Subsystem Agreement with CA-ISO which includes the proposed Pico Power Project. For this reason, SVP need not seek additional interconnection approval from the CA-ISO.

CA-ISO has reviewed and commented on the PG&E draft *System Impact Study & Facilities Study –Study Result* dated September 10, 2002. The attached e-mail from Irina Green of CA-ISO contains comments on the draft system impact study, dated October 18, 2002. The second email attached incorporates the responses of Kevin Kozminski of PG&E, dated October 19th, 2002 to the CA-ISO comments on the draft report. The CA-ISO review comments conclude "... the study is very thorough and well done and also the plant location is beneficial for the system."

CA-ISO COMMENT ON PG&E

SYSTEM IMPACT STUDY AND PG&E RESPONSE

Email Irina Green, CaISO to Kevin Kozminski, PG&E

-----Original Message-----
From: Green, Irina, CAISO
Sent: Friday, October 18, 2002 4:01 PM
To: Kozminski, Kevin, PG&E

Kevin:

Thank you for sending the Pico Project Study for review. I think that the study is very thorough and well done and also the plant location is beneficial for the system, since the Pico plant off-loads heavily loaded lines in San Jose and doesn't create new problems, except for increasing overload on the Kifer (Pico)-Scott line.

I am providing comments in e-mail, since the report was a draft and will send a formal letter after the report is finalized.

My comments and questions are the following.

1. What are SVP's plans regarding reconductoring of the Kifer-Scott line? It was my understanding that this line may overload when the Northern Receiving Station is built and part of the SVP load is moved to this substation. Doesn't SVP plan to reconductor this line by the end of this year?

2. Even if this is a pre-project problem, but overloading on the Kifer-Scott line may be avoided if the plant is connected directly to the Scott Substation, and not to the Kifer-Scott line. The distance between Kifer and Scott is very short, connection to Scott will require fewer circuit breakers and line relocation may not be required. Did you ever consider such an alternative?

3. There is a slight discrepancy in the project maximum output in the report and in the AFC filed with CEC. The report shows maximum output as 155 MW and the AFC as 147 MW.

4. Did you assume that FMC is looped? It looks like it from the base case, and from the switching deck for the Kifer-FMC outage (with FMC tapped, it would be Kifer-San Jose B)? When is the FMC loop planned to be done?

5. The short-circuit study results don't show the circuit breaker ratings. Therefore, it is impossible to confirm that the breakers are not overstressed. The three-phase short circuit current on one of the Pico's buses is very high: 63.249 kA, what breaker will be used there?

Please, consider these comments in the final report. Please, call me if you have any questions.

Thank you.

Irina Green
Senior Grid Planning Engineer

Email from Kevin Kozminski, PG&E to Irina Green, CaISO

-----Original Message-----
From: Kozminski, Kevin, PG&E
Sent: Friday, October 19, 2002
To: Green, Irina, CAISO

Hi Irina,

Thank you for reviewing the draft study report and providing us with comments. Here are some responses to your comments - Jim Carlson and Mike Keller of SVP may add some more additional information.

1) Scott-Kifer 115kV Line

Mike Keller told me that this line is to be reconductored with bundled conductor later this year. This is also stated in the SVP filing with the CEC, Chapter 6 on Electric Transmission.

2) Connection into Scott Receiving Station

SVP came up with the configuration of connecting the plant directly into the Scott-Kifer 115kV line. I believe that alternate sites and connection configurations were evaluated by SVP (see Chapter 9 in their CEC filing).

Having been to the proposed site next to Kifer, it would be difficult to route one or more new 115kV lines directly over to Scott, given the existing commercial development and the three 115kV lines already heading from Scott over to Kifer. If you look at Figure 1.1-1 in Chapter 1 of the AFC filing, Scott is out of the picture to the left. I'll e-mail you some pictures I took of the site and the lines.

3) Maximum Project Output

Originally, we were told that the project's maximum output was 170 MW. Then when the steam unit was resized, we were told that project's maximum output was 155 MW. We assumed that this was the maximum power delivered to the grid. (Jim/Mike/Steve - Is 155 MW the maximum output of the units and 147 MW the maximum power delivered to the grid?)

4) FMC Looped

Yes, the FMC Loop Project has been approved. The "looping" will be finished in early 2004. (The reconductoring of San Jose B-FMC Junction will be completed by next summer.)

5) Breaker Ratings

We will include the breaker ratings in the final report.

Thanks for the comments. Let me know if you have any other questions.

Kevin

8.1 AIR QUALITY

1. LORS compliance list (6-month expedited process [§2022(b)(1)(D)])

A list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive authority of the commission, and the information necessary to meet those requirements.

Information required to make AFC conform with regulations:

A list of the permitting requirements (Section 1.7 of the AFC noted that there was to be a table of the additional permits and processing schedules in each resource category, but none was provided in the Air Quality Section of the AFC. Additionally, all resource categories, other than Air Quality, have a section titled Permits Required and Schedule.)

Response—Table 8.1-37 in the AFC contains a comprehensive list of laws, ordinances, regulations, and standards for the protection of air quality. Information in this table includes the LORS title, purpose, regulatory agency, permit or approval, schedule and status of permit, and section of the AFC in which conformance with a given LORS is discussed. AFC Table 8.1-10 lists the applicable air quality permitting agencies with agency contacts, addresses and telephone numbers. Table 8.1-S1 (next page) contains additional, specific information about permitting schedules.

2. Initial Commissioning Phase (6-month expedited process [§2022(b)(2)(B)]):

A description of the project's planned initial commissioning phase, which is the phase between the first firing of emissions sources and the consistent production of electricity for sale to the market, including the types and durations of equipment tests, criteria pollutant emissions, and monitoring techniques to be used during such tests, and air dispersion modeling analyses of the impacts of those emissions on state and federal ambient air quality standards for NO_2, SO_2, CO, and PM_{10}.

Information required to make AFC conform with regulations:

A description of the commissioning phase, including a description of the types of equipment tests and their durations, emissions, and monitoring techniques used during the tests. (See the description of the commissioning phase for the Henrietta Peaker Project as a suitable level of detail, but please note Pico Power Project is a combined cycle project that will have additional commissioning activities that need to be described.)

Response—Startup and commissioning for the PPP turbines/HRSGs is estimated to occur over an approximate two-month duration from first fire to full load commercial operation. As a worst-case scenario, it is assumed that the PPP will perform startup and commissioning on both of the units in parallel. In reality, however, each turbine/HRSG will need to be commissioned on a slightly staggered schedule to best utilize onsite personnel and resources.

Each turbine/HRSG will be commissioned and tested based on the following activities associated with operation of turbine/HRSG. The estimated duration listed below is for each turbine/HRSG, i.e., each unit.

Table 8.1-S1. Required air quality permits/approvals and filing/acquisition schedule.

Required Permit/Approval	Issuing Agency	Schedule	Schedule Comments
Preliminary Determination of Compliance	Bay Area AQMD	Within 60 days after AFC is deemed Data Adequate.[1]	• Project AFC filed with CEC on 10/7/02. • Project ATC/PTO application filed with BAAQMD on 10/09/02. • BAAQMD has no formal expedited permit application-processing program. Applicant has requested expedited processing of the application.[4]
AQMD Completeness Determination	Bay Area AQMD	Within 30 days of ATC/PTO Application Submittal	Completeness determination expected from AQMD prior to 11-09-02.
Final Determination of Compliance	Bay Area AQMD	Within 100 days after AFC is deemed Data Adequate.[1]	Assumes timely information submittal per PRC 25550(d) and CCR Title 20, section 2026.
CEC AFC Certification	California Energy Commission	Within 180 days after AFC is deemed Data Adequate.[1]	Assumes timely information submittal per PRC 25550(d) and CCR Title 20, section 2026.
Authority to Construct	Bay Area AQMD	Subsequent to Issuance of CEC Certification	ATC expected within 30 days after CEC certification.
Prevention of Significant Deterioration Permit	Bay Area AQMD/EPA Region 9	NA	PSD permit not required for project.
Title IV Acid Rain Permit	Bay Area AQMD	• Submit application 24 months prior to commencement of operations[2] • Application submitted on • or about 10-25-02	Pursuant to Regulation 2, Rule 7 and 40 CFR 72.30(b)(2)(ii) and 72.6(a)(3)(i).
Title V Operating Permit	Bay Area AQMD	Submit application prior to commencement of construction[3]	Secure permit according to AQMD Title V timelines, per Regulation 2 Rule 6.

[1] Assumes CEC six-month certification process.

[2] Application will be submitted on or about 10-25-02 to comply with the 24-month timeframe requirement. EPA-Region 9 is aware that small combined-cycle power plants can be built and commence operations well under the 24-month timeframe.

[3] Per guidance obtained from BAAQMD staff (Mr. Bob Nishimura) on 10-22-02.

[4] Although PPP is subject to AQMD Regulation 2 Rule 2, New Source Review, PPP is not required to provide an ambient air quality modeling analysis for purposes of district compliance or application completeness. This should result in a shortened review period on the part of the AQMD.

The owner will minimize emissions of CO, NO_X, and other pollutants by limiting the test time of each commissioning activity to the shortest duration feasible. The NOx and CO catalysts will be installed at the earliest possible time in the testing cycle, consistent with the manufacturer's recommendations.

Table 8.1-S2 outlines the anticipated commissioning schedule.

Table 8.1-S2. Commissioning activities and durations.

Activity	Duration (Days Each Unit)	Number Of Units	Total (Days)	Unit Load (%)
First Fire	1	2	2	0
Full Speed No Load	2	2	4	0
CTG Combustor Tuning	2	2	4	30
Initial Emission Control Set-up	2	2	4	30
Parallel w Utility Electric Power Grid @ Minimum Load	1	2	2	30
HRSG Commissioning	5	2	10	30
Steam Blow	5	2	10	30
Install SCR & CO Catalyst	3	2	6	N/A
STG Commissioning	5	1	5	30
B.O.P. Commissioning	10	N/A	10	30
CTG Load Testing (% Load):				
30%	0.5	2	1	30
70%	0.5	2	1	70
100%	0.5	2	1	100
Final Emission Control Set-up (% Load):	3	2	6	
30%	0.5	2	1	30
70%	0.5	2	1	70
100%	0.5	2	1	100
Performance Testing	0.5	2	1	30 to 100
Emission Testing	0.5	2	1	30 to 100
Commercial Operation	N/A	N/A	N/A	30 to 100
Total			71	

1. Hours of operation per day = 10
2. All "% Load" values based on turbine output only.

Prior to initial startup of each unit, a continuous emissions monitoring (CEM) system will be installed, tested, and calibrated to measure criteria pollutants during startup and commissioning. The CEM will provide monitoring and recording on three-minute averages of fuel flow rates, firing hours, NOx, CO, and oxygen concentrations. The owner/operator will use District-approved methods to calculate heat input rates, mass emissions, and concentrations of criteria pollutant emissions. The CEM system type, specifications, and sampling location will be in accordance with District requirements. The operation of each unit without abatement will be limited to those commissioning activities, which must occur prior to installation of the SCR and CO catalysts.

Prior to the end of the commissioning period, the owner/operator will conduct a District-approved source test using external CEMs to determine compliance with both CEC and District imposed limitations. The source test will determine NO_X, CO, and VOC emissions during startup and shutdown of each unit. The

VOC emissions will be analyzed for methane and ethane to account for the presence of unburned natural gas. Sixty (60) calendar days before the execution of the source tests, the owner/operator will submit to the District and CEC Compliance Program Manager (CPM) a detailed source test plan designed to satisfy the requirements of this condition. The District and the CEC CPM will notify the owner/operator of any necessary modifications to the plan within thirty (30) calendar days of receipt of the plan; otherwise, the plan will be deemed approved. The owner/operator will notify the District and CEC CPM within the seven (7) calendar days prior to the planned source testing date. Source test results will be submitted to the District and CEC CPM within thirty (30) calendar days after completion of the tests.

The emissions and results of the commissioning impact analysis are presented in the application (Section 4.0). The analysis is based on both units being commissioned at the same time, with short-term emissions estimates that reflect conservatively high commissioning emissions. These estimates are not precise, since actual commissioning data from GE LM6000 turbines with associated HRSGs are not available. The analysis was performed only for short-term averaging times. In addition, because emissions of PM_{10} and SO_2 are not expected to be greater during commissioning than during normal operations, no commissioning modeling was performed.

Pollutant mass emissions from each of the Gas Turbines and Heat Recovery Steam Generators shall not exceed the following limits during the commissioning period.

NO_X (as NO_2)	18 pounds per hour
CO	45 pounds per hour

Table 8.1-S3 delineates the proposed test methods, test durations, parameters and pollutants subject to testing during the commissioning phase.

Table 8.1-S3. Test methods, durations parameters and pollutants subject to testing during commissioning.

Pollutant	CARB Test Method[1]	# of Tests	Test Length, mins
NOx	M100	Footnote 2	Footnote 2
CO	M100	Footnote 2	Footnote 2
O_2	M100	Footnote 2	Footnote 2
Moisture	M4	Footnote 2	Footnote 2
Volumetric Flow	M1 and M2	Footnote 2	Footnote 2

[1] Equivalent test methods may be substituted or required by the BAAQMD.

[2] Test duration and number of test runs will be highly dependent on the required or expected length of time for commissioning activities, i.e., actual startup, commissioning runtime, and shutdown sequence times.

3. Mitigation program (6-month expedited process [§2022(b)(2)(C)]):

A detailed description of the mitigation, which an applicant shall propose, for all impacts from critieria pollutants that currently exceed state or federal ambient air quality standards, but are not subject to offset requirements under the district's new source review rule.

Information required to make AFC conform with regulations:

A detailed description of the mitigation proposed for operating emissions of criteria pollutants that exceed state or federal standards. These pollutants are VOC (ozone precursor), PM_{10}, and SO_2 (PM_{10} precursor).

Response—CEC staff has requested information regarding proposed mitigation techniques for non-attainment pollutants that are not subject to BAAQMD offset requirements, as part of the data adequacy review process for the 6-month expedited license. The project will offset the emissions of NO_X, which are a precursor to ozone and PM_{10}, through the use of ERCs at a ratio greater than 1:1. The following mitigation methods are proposed for PM_{10}, and SO_2, NO_X, and POCs,.

PM_{10}

This mitigation plan describes how the PPP will provide emission reductions sufficient to mitigate the project PM_{10} emissions of 30,400 pounds per year from October to March. PPP proposes to work with the staff of the District to fund the existing District wood stove and fireplace retrofit/replacement program. Under the proposed retrofit/ replacement program, financial incentives will be provided to encourage residents of the cities of Santa Clara and San Jose (and surrounding areas) to replace existing wood stoves with gas stoves or to retrofit existing wood-burning fireplaces to gas fireplaces.

The wood stove and fireplace retrofit/replacement program will be patterned after the Los Esteros (01-AFC-10) and Russell City Energy Center (01-AFC-07) programs, which were both approved by CEC staff and BAAQMD. Under the program, Silicon Valley Power will provide financial incentives for the replacement or retrofit of older, uncertified wood stoves and fireplaces within cities of Santa Clara and San Jose (and nearby surrounding areas). This will be a voluntary program that would be implemented on a first-come, first-served basis and would last for approximately two years. During that time, any resident in the area would be able to replace an existing, operational non-certified stove or fireplace with a natural gas-fired stove or fireplace insert and receive an incentive payment of $300 to $500. The District would administer the program the through local retailers and professional, licensed installers. The retailers who participate in the program would provide certificates to participants. The participants would submit these certificates to the District to receive their rebates. The District would track the number of replacements and retrofits funded and would report periodically to PPP and to the CEC Compliance Project Manager.

Silicon Valley Power, through the PPP, will commit a total of $161,000 to fund this PM_{10} mitigation program. The funds will be designated listed in Table 8.1-S4:

Table 8.1-S4. Designation of funding for PM_{10} mitigation programs

Equipment	Number of Units	Unit Cost	Total Cost
Replacement Stoves	100	$500	$50,000
Stove Retrofits	270	$300	$81,000
BAAQMD Administrative Cost			$ 30,000
Total Grant			$161,000

SO_2

Included in the AFC was a discussion of the CEC staff's request for additional information regarding potential impacts of sulfur dioxide (SO_2) emissions as they relate to PM_{10} air quality. PPP proposes that sufficient mitigation would be provided in the form of emission reduction credits surrendered to comply with BAAQMD requirements. PPP believes that the project's SO_2 emissions of 2.9 tons per year would

be fully mitigated by the surplus reductions in both NO_x ERCs and through the PM_{10} mitigation program. Since NO_x and SO_2 are precursors of PM_{10}, and since the potential impact of the project's SO_2 emissions on PM_{10} air quality is the reason presented by staff for seeking mitigation of these emissions, we believe that we have satisfied the staff's requirements and that the further SO_2 mitigation is not required.

NO_x and POC

CEC staff has requested, as part of the data adequacy requirements for the 6-month filing process to include proposed mitigation techniques for NO_x and POCs. Specifically, the potential offset sources, the location, the quantity, and the method of reduction needs to be identified. The proposed project will offset the emissions of NOx and POCs through the use of BAAQMD ERCs at a ratio of 1:1 for both pollutants, such that there will be no net increase in either pollutant. Specifically, 51.5 tons of NO_x ERCs, identified in the list of emission reduction credits offered for the project (filed under a request for confidentiality) will be obtained. This filing also lists the source location and amounts of ERCs by certificate number. All ERC's were generated by plant shutdowns. In addition, as identified in the filing, 11.5 tons of POCs, will also be obtained. Please note that local offsets of POCs are in the process of being acquired.

4. BAAQMD Determination of Compliance (12-month process [Appendix B(g)(8)(A)]):

The information necessary for the air pollution control district where the project is located to complete a Determination of Compliance.

Information required to make AFC conform with regulations:

Permit application completeness determination from BAAQMD. Permit Application was provided to the District on 10/xx/02.

Response—The PICO Power Project AFC was submitted to the CEC on 10-07-02. The Authority to Construct/Permit to Operate application was submitted to the Bay Area AQMD on 10-09-02. Although the BAAQMD has no formal expedited permit processing regulations, the applicant has verbally requested an expedited application review. The applicant expects to have the completeness determination from the AQMD on or about 11-09-02. The completeness determination will be forwarded to CEC upon receipt from the AQMD. The BAAQMD has assigned the facility Application Number of 6481, and a Plant Number of 14991.

5. Permit schedule (12-month process [Appendix B(h)(4)]):

A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.

Information required to make AFC conform with regulations:

A schedule indicating when permits outside the authority of the commission will be obtained.

Response—Table 8.1-37 in the AFC contains permit scheduling information. Table 8.1-S1 (above) provides additional detailed scheduling information (response to Item #1).

8.2 BIOLOGICAL RESOURCES

1. Compliance with LORS (6-month expedited process [§2022(b)(1)(B)]):

Information demonstrating that the project as proposed in the application will comply with all such standards, ordinances, and laws.

Information required to make AFC conform with regulations:

Provide impact analysis for potential operational impacts to bay checkerspot butterfly and critical habitat and a project-specific proposal to mitigate potential impacts to less than significant.

Response—See the analysis of nitrogen deposition, its potential effects on protected species, and proposed mitigation measures, attached at the end of this section.

2. Protected species (6-month expedited process [§2022(b)(2)(F)]):

A demonstration, based on appropriate data including, but not limited to, scientific surveys taken at the appropriate time of year, that the project will have no significant impact on wetlands, plant or animal species that are endangered, threatened, or of concern under state or federal law, or the areas listed in Public Resources Code section 25527.

Information required to make AFC conform with regulations:

Model N deposition impacts to bay checkerspot critical habitat using ISCST3 model. Provide results in tablular format and propose mitigation to reduce potential impacts to less than significant.

Response—See the analysis of nitrogen deposition, its potential effects on protected species, and proposed mitigation measures, attached at the end of this section.

3. Cooling Tower Drift (12-month process [Appendix B(g)(13)(D)]):

A discussion of all permanent and temporary impacts to biological resources from site preparation, construction activities, and plant operation. Discussion of impacts must consider impacts from cooling tower drift, and from the use and discharge of water during construction and operation. For facilities which use once-through cooling or take or discharge water directly from or to natural sources, discuss impacts resulting from entrainment, impingement, thermal discharge, effluent chemicals, type of pump (if applicable), temperature, volume and rate of flow at intake and discharge location, and plume configuration in receiving water.

Information required to make AFC conform with regulations:

Provide a discussion of potential significant impacts to biological resources from proposed project's cooling tower drift.

Response—Cooling tower drift consists of water droplets that contain particles (PM_{10}). Due to the effects of gravity, nearly all of the cooling tower drift will be deposited relatively near the project site. The nearest area containing biological resources habitat to the project is potential burrowing owl foraging habitat at the San Jose Airport, approximately 0.44 miles from the cooling towers. Cooling

tower drift would not have a significant adverse effect on this potential habitat because of its distance from the cooling towers.

4. Educational Program (12-month process [Appendix B(g)(13)(E)(iii)]):

Any educational programs proposed to enhance employee awareness in order to protect biological resources.

Information required to make AFC conform with regulations:

Provide a discussion on the need for (or lack thereof) a biological resources educational awareness program.

Response—A biological resources awareness program would not serve a useful purpose for this project because neither the project site, the linear appurtenances (natural gas and waste water discharge pipelines), nor construction impact or laydown areas contain biological resources or sensitive habitats within or near their areas of potential effect. For this reason, we have not proposed an educational awareness program.

NITGROGEN DEPOSITION MODELING STUDY AND BAY CHECKERSPOT BUTTERFLY MITIGATION PROGRAM

Potential Impacts of Pico Power Project Operation on Vegetation in Bay Checkerspot Butterfly Critical Habitat

Silicon Valley Power will operate two (2) combined cycle natural gas-fired combustion turbines. The resulting exhaust gases will discharge to the atmosphere through 95-foot-tall exhaust stacks. Emissions of criteria pollutants from the two (2) exhaust stacks will include nitrogen oxides (NO_x), sulfur oxides (SO_x), and particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}). In addition, emissions of ammonia (NH_3) will occur as a byproduct of the Selective Catalytic Reduction (SCR) technology used to limit emissions of NO_x.

Nitrogen deposition resulting from the emissions of nitrogen compounds could increase the growth of non-native vegetation, particularly grasses, and as a result, could potentially have an adverse cumulative impact on the existing plant communities and endemic species in the area. This section assesses that potential.

The potential for impacts from nitrogen deposition in Bay checkerspot butterfly (BCB) critical habitat on soils and the associated plant and animal resources that they support depends on the following:

- Nitrogen deposition rates
- Response of non-native species to nitrogen fertilization

To assess the potential for nitrogen deposition on the BCB, two Gaussian deposition models were used: Industrial Source Complex Version 3 and CALPUFF. Both models and assumptions used are discussed below.

1.0 Nitrogen Deposition Rates

1.1 Chemical Transformation of NO_x Emissions

The oxidation of nitrogen oxides is a complicated process that can include a large variety of nitrogen species, such as nitrogen dioxide (NO_2), nitric acid (HNO_3) and organic nitrates (RNO_3) such as peroxyacetylnitrate (PAN). Atmospheric chemical reactions that occur in sunlight result in the formation of ozone and other compounds. Depending on atmospheric conditions, these reactions can start to occur within several hundred meters of the original NO_x source, or after the pollutants have been carried tens of kilometers downwind. Ultimately, some nitrogen oxides are converted to nitric acid vapor or particulate nitrates. Precipitation is one mechanism that removes these pollutants from the air. Forms of atmospherically derived nitrogen are removed from the atmosphere by both wet deposition (rain) or dry deposition (direct uptake by vegetation and surfaces).

Ammonia and ammonium are other forms in which nitrogen occurs. Ammonia is a gas that becomes ammonium when dissolved in water, or when present in soils or airborne particles. Unlike NO_x, which forms during combustion, soil microorganisms naturally form ammonia and ammonium compounds of nitrogen and hydrogen.

In urban atmospheres, the oxidation rate of NO_x to HNO_3 is estimated to be approximately 20 percent per hour, with a range of 10 to 30 percent per hour (CARB, 1986). Aerosol nitrates (NO_3) are present, mainly in the form of ammonium nitrate (NH_4NO_3). Nitrate and ammonium (NH_4) are the predominant forms by which plants absorb nitrogen. In California, ammonium nitrate is the predominant airborne nitrate-bearing particle in the atmosphere (CARB, 1986).

2.0 Description of the ISCST3 Model

The purpose of the Industrial Source Complex Short Term Version 3 (ISCST3) Gaussian model is to assess regional scale air quality impacts from combustion sources. Given source strength, meteorology, site geometry, and site characteristics, the model can predict pollutant concentrations for locations (receptors) located within 50 kilometers of the site.

ISCST3 is called a Gaussian model because the pollutant mass within a plume calculated by ISCST3 is assumed to follow a bell-shaped curve, called the normal distribution. A normal, or Gaussian, distribution is one in which the maximum concentrations occur in the middle of the plume and taper exponentially to almost zero at the edges. The edge of the plume is defined by the point where the concentration drops to 10% of the centerline value.

This one major assumption incorporates a number of other supporting assumptions called boundary conditions. The major boundary conditions in ISCST3 are:

- **Steady State**—The first supporting assumption is that the atmosphere and source are in steady state. This means that the atmosphere and source conditions are constant over a period of time. With the ISCST3 model, meteorology and emission conditions are assumed to be invariant for a 1-hour period. Therefore, this is not an instantaneous picture of conditions. Since in reality, both the atmosphere and source are variable over periods of time, an average must be taken that uses many instantaneous pictures.
- **No Removal**—The second supporting assumption is that no pollutant mass is lost from the plume through chemical reaction or physical deposition on a surface. This is called conservation of mass.
- **No Downwind Stretching**—The third supporting assumption is that the plume does not stretch in the downwind direction. This means that the pollutant material through any slice, or cross section, of the plume is the same as any other cross section of the plume: distance from the source does not matter.
- **Stable Pollutant**—The fourth assumption is that the material in the plume does not undergo chemical or physical change. The material from the source remains in the same state at which it was released.
- **Average Wind**—The last supporting assumption is that an average wind speed and direction can be identified for a 1-hour period, and that they are typical for the atmospheric layer that will disperse the pollutants.

Boundary conditions limit the model's ability to fully describe the physical conditions of the source and the atmosphere. This means that models using the Gaussian distribution may not estimate pollutant concentrations accurately. The assumptions are the reasons that Gaussian model results are conservative. This is, the estimates of downwind concentrations are larger than may be observed at a real receptor. Using ISCST3 model, a calculation for a new source will overestimate the source's effect on air quality.

2.1 ISCST3 Modeling Assumptions

ISCST3, which was used in the AFC to evaluate the project's air quality impacts, was also used in the deposition analysis. As described previously, ISCST3 is a steady-state, mass-conserving, nonreactive (i.e., does not consider potential chemical changes in the pollutants during dispersal) Gaussian plume dispersion model. The ISCST3 model overestimates depositional impacts, and this conservatism was increased in this modeling effort by including additional assumptions with regards to nitrogen formation and deposition, in order to assess the maximum potential for impacts from the PPP. These assumptions include:

- 100 percent conversion of oxides of nitrogen (NO_x) and ammonia (NH_3) into atmospherically derived nitrogen (ADN) within the turbine stack(s) rather than allowing the conversion of NO_x and NH_3 to occur over distance and time within the atmosphere
- Depositional rates and parameters were based upon nitric acid (HNO_3) which, of all the depositional species, has the most affinity for impacts to soils and vegetation and the most tendency to "stick" to what it is deposited upon
- Maximum settling velocities to produce maximum deposition rates
- Maximum potential emissions were used rather than actual emissions in the calculation of nitrogen deposition
- Impacts on lands were a result of intermediate terrain processing, which maximizes impacts in areas of complex terrain (i.e. terrain above stack top)
- And, once it leaves the turbine stack, nitrogen immediately begins to deposit in the surrounding lands

To produce conservative results (overestimates), modeling assumptions regarding the complex chemistry that occurs to produce nitrogen from NO_X, ammonia, and other pollutants were used in this modeling analysis. As one example, it was assumed that the pollutants leaving the stack(s) would already be in the form of depositional nitrogen (nitrate and ammonium ions). Thus, all impacts would represent 100 percent conversion of combustion emissions into depositional nitrogen. This assumption leads to an exceedingly conservative estimation of nitrogen deposition, because areas with the highest nitrogen emissions do not necessarily experience the greatest deposition effects, which usually occur far from the original nitrogen source. In addition, since mass is conserved in the model, all downwind calculations of nitrogen deposition, regardless of distance and formation rates, are overestimated by the model.

The ISCST3 model calculates atmospheric deposition of nitrogen by calculating the wet and dry fluxes of total nitrogen. This deposition is accomplished by using a resistance model for the dry deposition part, and by assigning scavenging coefficients for the wet removal process from rainout. As discussed below, depositional parameters are input into the model in order to calculate the deposition of nitrogen. Again, depositional parameters were based on HNO_3, which is consistent with the conservative modeling assumptions that overestimate the amounts of nitrogen deposition from the proposed project. Nitric acid tends to deposit more readily than most other compounds.

No chemical conversion (which takes place over distance and time) was allowed to occur. In reality, the nitrate aerosol cannot be considered a stable product, such as sulfate typically is. Also, unlike sulfate, the ambient concentration of ADN is limited by the availability of ammonia, which is preferentially scavenged by sulfate. Because of the preferential scavenging of ammonia by sulfate, the available ammonia in the atmosphere is often computed as total ammonia minus sulfate. These effects were not included in the analysis.

The assumption that ADN forms instantaneously in stack and immediately begins to deposit in the surrounding terrain leads to an estimation of nitrogen deposition that is unrealistically high, and would likely be several orders of magnitude higher than the actual process itself. This is especially true in the immediate area(s) surrounding the project site.

The other assumptions listed above, along with those inherent in a Gaussian Plume model, add to the conservative nature of the modeling analysis. All these factors were combined into one modeling study to produce much higher impacts than would be modeled using less conservative assumptions. The goal of

the analysis was to combine many conservative assumptions into one modeling analysis in order to overestimate the potential impact from operation of the PPP.

3.0 Description of the CALPUFF Model

Significant terrain features and large distances (>10 km) separate the location of the proposed project site and the various surrounding serpentine habitats. The use of a single plume, steady state Gaussian model (ISCST3), to represent mesoscale conditions in complex terrain can produce conservatively unrealistic results. Traditional Gaussian models cannot take into account the complex dispersion and deposition conditions that could arise over large mesoscale domains in complex terrain.

As part of an Interagency Workgroup on Air Quality Modeling (IWAQM) study to design and develop a generalized non-steady-state air quality modeling system for regulatory use in situations where long range transport is involved, the CALPUFF dispersion model was developed. The original design specifications for the modeling system included: (1) the capability to treat time-varying point and area sources, (2) suitability for modeling domains from tens of meters to hundreds of kilometers from a source, (3) concentrations for averaging times ranging from one hour to one year, (4) applicability to inert pollutants and those subject to linear removal and chemical conversion mechanisms and, (5) applicability for rough or complex terrain situations.

The modeling system developed to meet these objectives consisted of three components: (1) a meteorological modeling package with both diagnostic and prognostic wind field generators, (2) a Gaussian puff dispersion model with chemical removal, wet and dry deposition, complex terrain algorithms, building downwash, plume fumigation, and other effects, and (3) post-processing programs for the output fields of meteorological data, concentrations and deposition fluxes.

CALPUFF is a multi-layer, multi-species, multi-source, non-steady-state puff dispersion model that can simulate the effects of time- and space-varying meteorological conditions on pollutant transport, transformation, and removal. CALPUFF can use the three-dimensional meteorological fields developed by the CALMET model, or simple, single-station winds in a format consistent with the meteorological files used to drive the ISCST3 steady-state Gaussian model. For this analysis, the single-station meteorological data set was used.

3.1 CALPUFF Modeling Assumptions

A screening mode of the CALPUFF modeling system was run for the proposed project in order to calculate potential impacts to critical habitat along Coyote Ridge, which is located approximately 11 kilometers southeast of the project site location. This modeling analysis focused on the potential nitrogen depositional impacts to protected areas in the vicinity of the project. The modeling followed screening guidance as provided by the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase 2 Summary Report. The modeling procedures also incorporate comments provided by the Federal Land Managers' Air Quality Related Values workgroup (FLAG) Final Phase I report (December 2000).

The screening mode of the CALPUFF modeling system requires hourly, single-station meteorological data as input, both surface and upper air. Based on the guidance contained in the IWAQM Phase 2 Summary Report, CALPUFF was used in a screening mode, which required five years of single station meteorology. Five years of surface data were obtained for Moffett Field Federal Air Field Complex. The upper air data was set equal to 600 meters for all hours, as recommended by BAAQMD modeling guidance.

The PCRAMMET meteorological preprocessor, as recommended by the IWAQM Phase 2 Report, was used to process the surface, precipitation, and upper air data. PCRAMMET requires complete data sets of the following variables: wind speed, wind direction, temperature, ceiling height, opaque cloud cover or total cloud cover, surface pressure, relative humidity, and precipitation type. The five years of upper air data includes twice-daily mixing heights, which as stated earlier, was set to 600 meters.

PCRAMMET was run with wet deposition options as required in the Phase 2 Report. As such, the following domain averaged variables are required and were based on values expected in the modeling region:

- Precipitation data
- Minimum Obukhov length = 2 meters
- Surface roughness length = 0.25 meters (at both measurement and application site)
- Noon time albedo = 0.29
- Bowen ratio = 1.75
- Fraction of net radiation absorbed by ground = 0.15
- Anthropogenic heat flux = 0.0 W/m^2

Five years of data was preprocessed with PCRAMMET, which was then used as input into CALPUFF.

CALPUFF also requires domain averaged background ozone (O_3) and ammonia (NH_3) concentrations for the Mesopuff II chemistry algorithm. For O_3, a domain-averaged value of 176 ppb was used, which was based on background O_3 data collected in the project region by the Bay Area Air Quality Monitoring District. For NH_3, a domain average value of 0.8 ppb was selected and was based on results of using the ISCST3 model to calculate background NH_3 from the proposed project.

A CALPUFF control file was generated that included IWAQM recommended defaults for the model options. This included rural dispersion coefficients, default wind speed profile exponents, and default vertical potential temperature gradient. Model options are listed in the CALPUFF model output, which is included on compact disk. A brief summary of the options used in the modeling analysis are listed below:

- Number of X grid cells = 2
- Number of Y grid cells = 2
- Number of vertical layers = 1
- Grid spacing = 210 km
- Cell face heights = 5000 meters
- Minimum mixing height = 50 meters
- Maximum mixing height = 5000 meters (based on observational data)
- Minimum wind speed allowed for non-calm conditions = 0.5 m/s
- Vertical distribution used in the near field = gaussian
- Terrain adjustment method = partial plume path adjustment
- No puff splitting allowed
- Chemical mechanism = Mesopuff II
- Wet and dry removal modeled
- Dispersion coefficients = PG dispersion coefficients

- PG sigma-y and z not adjusted for roughness
- Partial plume penetration of elevated inversion allowed
- Lateral turbulence not used

The computational grid extended 50 kilometers beyond the furthest receptor point.

4.0 Nitrogen Deposition Mechanisms

The ISCST3 wet and dry deposition modeling for gaseous pollutants is based on the algorithm contained in the CALPUFF dispersion model (USEPA, 1995), which Moore, et al., reviewed and evaluated (1995). The deposition flux, F_d, is calculated as the product of the concentration, χ_d, and a deposition velocity, v_d, computed at a reference height z_d:

$$F_d = \chi_d \bullet v_d$$

The dry deposition algorithm is based on an approach that expresses the deposition velocity as the inverse sum of total resistance. The resistance represents the opposition to transporting the pollutant through the atmosphere to the surface. ISCST3 incorporates several resistance models that include aerodynamic resistance, canopy resistance, cuticle resistance, deposition layer resistance, mesophyll resistance, and stomatal action.

With wet deposition, gaseous pollutants are scavenged by dissolution into cloud droplets and precipitation. A scavenging ratio approach was used to model the deposition of gases through wet removal. In this approach, the flux of material to the surface through wet deposition (Fw) is the product of a scavenging ratio times the concentration, integrated in the vertical direction. Because the precipitation is assumed to initiate above the plume height, a wet deposition flux is calculated, even if the plume height exceeds the mixing height.

5.0 Model Inputs

In order to model gaseous deposition, the following inputs are required:

- The molecular diffusivity for the pollutant being modeled [cubic centimeters per second (cm^2/s)]
- The solubility enhancement factor (a_*) for the pollutant
- The pollutant reactivity parameter
- The mesophyll resistance term (r_m) for the pollutant (s/cm),
- The Henry's Law coefficient for the parameter

For this analysis, it was assumed that the deposition parameters would be based on gaseous nitric acid. Nitric acid was chosen to represent total nitrogen deposition since nitric acid has the greatest potential for depositional effects. The deposition parameters were obtained from the CALPUFF modeling system.

The analysis focused on both land and water deposition rates. Two parameters are only used when applying the algorithm over a water surface. If no water surfaces were present in a particular application, then dummy (non-zero) values were input for these parameters.

In addition to the above inputs, the dry and wet deposition algorithm also requires surface roughness length (cm), friction velocity (meters per second), Monin-Obukhov length (meters), leaf index ratio, precipitation type, and precipitation rate. For ISCST3, site-specific meteorology was used in this analysis and was based on the 1993 data set collected near the project site. This is the same meteorological data set that was used for the deposition analysis for Calpine's Los Esteros, Metcalf, and Gilroy energy

centers. This data was originally supplemented with other surface data from Moffett Field Federal Air Field. CALPUFF requires extended data, as discussed earlier. Therefore, 5 years of Moffett Field data was used.

Several different vegetative and land use types surround the project site, but the predominate type can be characterized as rangeland. Most of the BCB critical habitat areas are in rangeland (on hillsides), so land use characteristics based on rangeland were defined to model deposition, including the surface roughness length, leaf-area index, and plant-growth state. For roughness lengths, domain-averaged values for rangeland for both an active growing season and an inactive season were identified. Leaf area indices were also based on domain-averaged values for an active growing season and an inactive/dormant season. To calculate nitrogen deposition velocities, the state of the vegetation must also be specified; the modeling done assumed that the vegetation was non-irrigated stressed.

This approach was used to develop conservative, worst-case scenarios to evaluate potential nitrogen deposition on the BCB critical habitat (rangeland). The following scenario was used in the assessment of nitrogen depositional fluxes:

This approach was used to develop conservative, worst-case scenarios to evaluate potential nitrogen deposition on the serpentine habitats (rangeland). The following two scenarios were used in the assessment of nitrogen depositional fluxes:

Scenario 1: Rangeland—active growing season

- Period: November 1 through June 30
- Vegetation state: active and stressed (nonirrigated)
- Roughness length = 0.05 meter
- Leaf area index = 0.5

Scenario 2: Rangeland—inactive season

- Period: July 1 through October 31
- Vegetation state: inactive
- Roughness length = 0.05 meter
- Leaf area index = 0.2

In addition to these scenarios, depositional parameters based on HNO_3 were used in ISCST3:

- Molecular diffusivity (cm^2/sec) = 0.1628
- Alpha star = 1.0
- Reactivity parameter = 18.0
- Mesophyll resistance (seconds per centimeter) = 0.0
- Henry`s law coefficient = 0.0
- Scavenging coefficient [LIQ] 1/(s-mm/hr) = 0.60E-04
- Scavenging coefficient [ICE] 1/(s-mm/hr) = 0.00E+00

ISCST3 and CALPUFF calculate depositional flux at user-specified locations, called receptors. Receptors were placed at 180-meter intervals in sensitive serpentine habitats as identified by Dr. Stuart Weiss and by U.S. Fish and Wildlife. These areas are south of the project site along the Coyote Ridge and include an area just west of Coyote Ridge. The use of 180-meter resolution produced more than 12,280 locations where deposition was calculated in both models.

6.0 Nitrogen Deposition Modeling Results

Results of the nitrogen deposition modeling for the two scenarios were summed (growing season plus inactive season) to produce annual deposition rates in units of kilograms per hectare per year (kg/ha-yr). Since the serpentine areas cover a wide variety of elevations and distances, the deposition rate calculated for each receptor was averaged over the serpentine area(s).

Table 1 presents the worst-case ISCST3 modeled potential averaged annual deposition rates resulting from operation of the proposed project. Potential deposition rates on Coyote Ridge and the Extension are extremely small (see Table 1). Cumulative deposition rates that may result from operation of the proposed project were calculated as the sum of deposition from the project, plus background estimates (Weiss 1999). However, actual cumulative deposition rates are difficult to determine, given the uncertainty of the background estimates (± 50percent) and the historical changes in background pollution levels.

Table 1. Modeled maximum nitrogen deposition at serpentine locations in the vicinity of the PPP; impact analysis for NO_x and NH_3 emissions, ISCST3.

Location[a]	Averaged Modeled Deposition from PPP Over Serpentine Areas (kg/ha-yr)			Background plus project (kg/ha-yr)[b]
	Active season	Inactive season	Annual	
Coyote Ridge Average	0.01065	0.007001	0.017652	8.4177

[a] Serpentine areas=rangeland.
[b] Background plus maximum modeled annual deposition from project. Background is approximately 8.4 kg/ha-yr (Weiss, 2000). The uncertainty of this estimate is ±50 percent.

Table 2 presents the worst-case CALPUFF maximum modeled potential annual deposition rates resulting from operation of the proposed project. Here, the maximum-modeled impact is presented rather than the average.

Table 2. Modeled maximum nitrogen deposition at serpentine locations in the vicinity of the PPP; impact analysis for all species of NO_x emissions, CALPUFF.

Location[a]	Averaged Modeled Deposition from PPP Over Serpentine Areas (kg/ha-yr)			Background plus project (kg/ha-yr)[b]
	Active season	Inactive season	Annual	
Coyote Ridge Average	0.0047902	0.0019	0.0067902	8.4068

[a] Serpentine areas= rangeland.
[b] Background plus maximum modeled annual deposition from project. Background is approximately 8.4 kg/ha-yr (Weiss, 2000). The uncertainty of this estimate is ±50 percent.

7.0 Response of Non-native Species to Nitrogen Fertilization

Nitrogen fertilization of soil increases nitrogen absorption by plant roots and, consequently, increases the growth rate and biomass production of many species, including the non-native annual grass species that tend to invade native California grasslands. As previously discussed, the endemic serpentine vegetation is particularly sensitive to competition from annual grasses. When soils are fertilized by artificial nitrogen sources, those nitrogen sources are available to all plant species. However, non-native grasses usually have more vigorous growth habits than serpentine species. When land is adequately fertilized for non-natives, these species easily out-compete serpentine species. The threshold of annual nitrogen deposition

rates that can potentially cause such impact on sensitive plant communities is approximately 3 to 10 kg/ha-yr (USDA, 1992). Increased fertilization and subsequent succession of endemic serpentine species by non-native grasses currently occurs within serpentine grasslands throughout the Bay Area. Cattle grazing in these habitats has become an important practice to minimize the growth of non-native grasses and to increase the survival potential of endemic serpentine plant species, thereby preserving habitat for endemic invertebrate species such as the threatened Bay checkerspot butterfly.

Nitrogen deposition must be converted to plant-available forms of nitrogen to affect plant nutrition. Absorption of NO_3 and NH_3 by plant roots is the predominant mode of plant nitrogen nutrition, but a relatively small amount of NH_3 and NO_2 can be absorbed by plant foliage (Marschner, 1995).

Plant response to additions of nitrogen fertilization depends not only on the total amount of nitrogen available, but also on the distribution of total supply over time. When added to soil, inorganic forms of nitrogen (mainly NH_4-N and NO_3-N) can be stored, transformed, or removed. Soil processes that reduce the amount of inorganic nitrogen available for plant use include:

- Immobilization of inorganic NH_3 and NO_3 into organic forms occurs through microbial use and plant uptake, and mineralization of organic matter. A portion of the NH_4 and NO_3 is taken up by plants and immobilized into organic forms. In natural soil-plant systems, most of the total nitrogen is in the organic form (in plants and microorganisms). Some of the nitrogen in the soil-plant system can be removed by grazing animals or through harvesting and removing vegetation. As organic matter mineralizes, amino acids decompose to NH_4.
- Gaseous loss of nitrogen occurs through NH_3 volatilization.
- Ammonium can eventually be converted to NO_3 by the microbial process of nitrification in the soils.
- Leaching of NO_3 occurs below the root zone of plants.
- Denitrification of NO_3 and gaseous loss of elemental nitrogen (N_2) and NO_x occurs.

As a result of the processes, not all of the nitrogen added to the soil during each deposition event is available for plant use.

The maximum potential nitrogen deposition rates that have been estimated for serpentine areas (Tables 1 and 2) are small compared to the nutritional nitrogen requirement of non-native grasses. Therefore, in areas where ambient nitrogen depositions rates are well below the threshold for adverse impacts on serpentine community (3 to 10 kg N/ha-yr) (USDA, 1992), the potential for deposition from the PPP operation to initiate transformation of serpentine habitat is unlikely. Background nitrogen deposition rates in the South Bay Area are estimated to be about 7 kg/ha-yr (Blanchard, et al., 1996) and 12 to 15 kg/ha-yr (Weiss, 1999). Because these estimates indicate that current deposition rates probably are above the 3- to 10-kg/ha-yr threshold, conditions for impacts on serpentine communities in these areas most likely already exist, so the potential incremental impact of the proposed operation is insignificant given the small increase (0.0067 kg/ha-yr) in depositional species.

8.0 Mitigation

Despite the insignificant effect of nitrogen deposition from the Pico Power Project on serpentine grasslands, the Applicant is committed to fully mitigating for any potential cumulative impacts to the Bay checkerspot butterfly. The Applicant will continue to work with the US Fish and Wildlife Service (USFWS) and CEC to explore avenues for approving the mitigation and the methodology for determining

the level of mitigation. The outcome of this process may be informal consultation with the FWS, formal consultation, or no consultation.

Past projects permitted in the Santa Clara Valley, such as the Metcalf Energy Center and the Los Esteros Energy Center, have mitigated cumulative impacts to the Bay checkerspot butterfly and other serpentine species through the purchase of land, the establishment of a conservation easement with an appropriate conservation group, and the funding of an endowment in perpetuity for habitat management.

In previous projects, the mitigation acreage was calculated by taking the ratio of the maximum deposition rate to the background deposition rate, and multiplying the resulting number by the total acres potentially impacted. In 2001, the USFWS designated 15 critical habitat units for Bay checkerspot butterfly (Federal Register 21449-21489, April 30,2001). Of these, eleven are reasonably within the area potentially affected by emissions from the Pico Power Project. Some of these are critical habitat units where the Bay checkerspot butterfly may have been extirpated, but four listed serpentine plant species species, Coyote Ceanothus, Santa Clara Valley Dudleya, Metcalf Canyon Jewelflower and Tiburon paintbrush, may occur (e.g. Communications Hill, Silver Creek, Santa Teresa).

In designating these areas, the USFWS sought to afford protection not only to the serpentine habitat upon which the butterfly depends for food, but dispersal areas of non-serpentine grassland and other habitats, as well as "inclusions" of residential, industrial and paved areas within the overall serpentine habitat zones that do not support butterflies. However, in including these additional areas, USFWS stated that projects that occur in areas that lack the critical habitat characteristics are not subject to consultation. Therefore, although the total area designated by the USFWS is over 21,000 acres, only a portion of this is actually serpentine habitat and therefore sensitive to nitrogen deposition. Dr. Stuart Weiss has calculated the actual area of serpentine habitat at approximately 9,926 acres.

Tables 3 and 4 compare the mitigation acreage calculations using the ISCST3 and CALPUFF models, using 9,926 as the total acres of serpentine habitat potentially impacted. The ISCST3 model is more conservative and uses simplifying assumptions that significantly overstate potential impacts and was included in this analysis as a "worst-case" maximum possible estimate of potential impacts. The CALPUFF model contains more realistic assumptions, and is a more accurate approximation of the mitigation acreage the Applicant will acquire and place under management.

The results of both models are included in this analysis since CEC Staff requested that the Applicant present the results of ISCST3 modeling and also because these two models have been applied, in recent cases before the California Energy Commission and US Fish and Wildlife Service, to estimate the potential impacts of power plant emissions on checkerspot butterflies and the appropriate acreage for mitigation of these impacts. In the Los Esteros Critical Energy Facility case (01-AFC-12), mitigation was based on a consideration of both the ISCST3 and CALPUFF model results. In the Otay Mesa Power Project case (99-AFC-05), however, the US Fish and Wildlife Service approved a mitigation plan based entirely on the CALPUFF model for nitrogen deposition impacts on the habitat of the Quino checkerspot butterfly, a close relative of the Bay checkerspot butterfly.

Both the ISCS3 and CALPUFF models use conservative assumptions regarding the processes of deposition, conservation of nitrogen deposited, and the ability of plants to take up and use the nitrogen deposited. Some of the differences between the operation and input assumptions of these two models were discussed earlier (see sections 2.0 and 3.0). The most important difference is that the ISCST3 model assumes that 100 percent of NO_x and NH_3 is converted to atmospherically derived nitrogen in the power plant stacks, prior to deposition modeling, whereas CALPUFF more accurately reflects the fact that conversion takes place across the entire dispersion field. In other words, ISCST3 does not account for the

fact that not all of the NO_x and NH_3 will not convert to depositional nitrogen and be deposited in the critical habitat areas.

Prior to operation of PPP, the applicant will acquire the mitigation land and donate it to an appropriate conservation group for management. The Applicant will establish an endowment for management of this land in perpetuity. The endowment's size will be determined through a Property Analysis Record (PAR) analysis or other appropriate methodology. Such methodologies are used to determine the long-term management activities and financial requirements of a conservation project, and identify and establish financing mechanisms for management in perpetuity. The Applicant's funding of the mitigation program will take into consideration the key elements of: 1) cost of land, 2) costs of land acquisition (closing costs, etc.), 3) costs to endow management in perpetuity of the mitigation lands, 4) costs, if any, to restore the land to a condition suitable for a habitat preserve, and 5) the costs, if necessary, for gathering baseline data required for land management.

Table 3. Estimated potential impact area, using ISCST3 modeling program.

	A	B	C	D	E
Critical Habitat Unit	**Unit Acres (USFWS)**	**Acres of serpentine habitat (Weiss)**	**Average deposition (kg/ha-yr)[1]**	**Project deposition as a percent of background[2]**	**Mitigation acreage[3]**
Bear Ranch Unit	617	617	0.013676	0.0016281	1.00453476
Communication Hill	442	369	0.094108	0.01120333	4.13403
Kalana Hills	244	82	0.0370204	0.00440719	0.36138962
Kirby	6912	3746	0.0288884	0.0034391	12.8828508
Morgan Hill	724	431	0.0268547	0.00319699	1.37790187
Metcalf Unit	3351	1224	0.0372243	0.00443146	5.42411229
San Felipe	998	595	0.025912	0.00308476	1.83543333
Silver Creek	787	400	0.0575783	0.00685456	2.74182381
San Vicente-Calero	1875	272	0.0271736	0.00323495	0.87990705
San Martin	586	586	0.0212239	0.00252665	1.48061969
Santa Theresa Hills	4500	1296	0.0409335	0.00487304	6.31545429
Tulare Hill	876	308	0.0478161	0.00569239	1.753257
Total (acres)	**21,912**	**9,926**			**40.1913145**

[1]Average deposition per habitat unit, from ISCST3 stack emissions and meteorological model.
[2]Background deposition is 8.4 kg/ha-yr, so D = C/8.4.
[3]Mitigation acreage is calculated as critical habitat unit acres times project deposition as a percent of background (E=A*D)

Mitigation land for the Bay checkerspot butterfly and other serpentine endemics is, fortunately, available in relative abundance in the Santa Clara and Coyote Valley areas. As an example, approximately 2,000 acres of serpentine grassland on Coyote Ridge, on the east side of Highway 101, 10 miles south of San Jose, has been available. Castle & Cooke, a land development group, owns the land and has been converting it into a reserve through a process similar to mitigation banking. The Applicant contacted Castle & Cooke in August 2002, to inquire about the process and determine if mitigation land is still available. Caste & Cooke stated that several hundred acres of serpentine grassland is available for $24,000 per acre so that the acreage available far exceeds the amount necessary for the Pico Power

Project. Other sources of mitigation land are also available. The Castle & Cooke source is listed here to document the fact that there is a relatively large supply of serpentine grassland mitigation acreage available on the market and that land acquisition should not be an obstacle to successful mitigation.

Table 4. Estimated potential impact area, using CALPUFF modeling program.

	A	B	C	D	E
Critical Habitat Unit	**Unit Acres (USFWS)**	**Acres of serpentine habitat (Weiss)**	**Average deposition (kg/ha-yr)[1]**	**Project deposition as a percent of background[2]**	**Mitigation acreage[3]**
Bear Ranch Unit	617	617	0.0010858	0.00012926	0.0797546
Communication Hill	442	369	0.0069654	0.00082921	0.30598007
Kalana Hills	244	82	0.0026892	0.00032014	0.02625171
Kirby	6912	3746	0.0019271	0.00022942	0.85939483
Morgan Hill	724	431	0.0020057	0.00023877	0.10291151
Metcalf Unit	3351	1224	0.0027031	0.0003218	0.39388029
San Felipe	998	595	0.0028280	0.00033667	0.20031667
Silver Creek	787	400	0.0036828	0.00043843	0.17537143
San Vicente-Calero	1875	272	0.0047992	0.00057133	0.15540267
San Martin	586	586	0.0015590	0.0001856	0.10875881
Santa Theresa Hills	4500	1296	0.0043344	0.000516	0.668736
Tulare Hill	876	308	0.0024453	0.00029111	0.089661
Total	**21,912**	**9,926**			3.16641958

[1]Average deposition per habitat unit, from CALPUFF stack emissions and meteorological model.
[2]Background deposition is 8.4 kg/ha-yr, so D = C/8.4.
[3]Mitigation acreage is calculated as critical habitat unit acres times project deposition as a percent of background (E=A*D)

Regardless of the source of mitigation land, the Applicant would transfer ownership of this land to the Santa Clara Valley Land Trust or other suitable conservation organization for long term management as part of the mitigation program. Dr. Stuart Weiss, a locally recognized expert on serpentine habitat and the Bay checkerspot butterfly, has characterized the land available in the Coyote Valley area as high quality habitat due to the presence of a core population of the Bay checkerspot butterfly, serpentine plant species such as Santa Clara Valley dudleya and Mt. Hamilton thistle, and ongoing grazing management to control non-native grasses (Weiss, pers. comm. August, 2002). This area has been approved for use as mitigation land by USFWS, with David Wright as the primary contact.

The Santa Clara Valley Land Trust (SCVLT) has developed appropriate management strategies for serpentine habitat in relation to similar projects. The SCVLT manages the serpentine habitat that has been purchased and endowed through various projects as a contiguous unfenced unit, with cross rights for cattle grazing, biological monitoring, and routine maintenance activities.

Once the appropriate mitigation acreage has been determined in consultation with the CEC Staff and regulatory agencies, Silicon Valley Power will acquire the mitigation land. After specific land parcels have been optioned or purchased, Silicon Valley Power will prepare a management plan for the serpentine habitat preserve and will submit this plan to the CEC and USFWS. The plan will include the following:

- A description of mechanisms to ensure management in perpetuity, including land purchase, donation of the land to the Santa Clara Valley Land Trust and procurement of a conservation easement, and the establishment of an endowment.
- A description of the way in which the mitigation land will be integrated into surrounding serpentine habitat as part of broader conservation efforts.
- A grazing management plan, including the number of cows per acre and seasonal grazing patterns. Serpentine grassland grazing regimes are usually extremely light, approximately 1 cow per 10 acres or less, for a short duration in the early to late spring.
- A biological monitoring plan, including vegetation ecology and population monitoring for the Bay checkerspot butterfly. Baseline data will be established in the first 3 years, with monitoring performed periodically (every 2 to 3 years) thereafter. Monitoring results will be used to adjust and/or refine the management of the reserve.
- A description of any proposed research, for example the use of prescribed burns as an alternative to grazing for non-native grass control and nitrogen volatization.
- A description of the routine maintenance activities that will be performed.

9.0 References Cited

CARB (Air Resources Board). 1986. The Effects of Oxides of Nitrogen on California Air Quality. By Technical Support Division State of California Air Resources Board. Report Number: TSD-85-01. March

Environmental Protection Agency. 1995a. A User's Guide for the CALPUFF Dispersion Model. EPA-454/B-95-006. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Environmental Protection Agency. 1995b. User's Guide for the Industrial Source Complex (ISC3) Dispersion Models, Volume II - Description of Model Algorithms. EPA-454/B-95-003b. U.S. Environmental Protection Agency, Research Triangle Park, NC.

Marschner, H. 1995. *Mineral nutrition of higher plants*. Academic press. New York, NY.

Moore, G., P. Ryan, D. Schwede, and D. Strimaitis. 1995. Model performance evaluation of gaseous dry deposition algorithms. Paper 95-TA34.02, 88th Annual Meeting & Exhibition of the Air and Waste Management Association, San Antonio, Texas, June 18-23, 1995.

8.3 CULTURAL RESOURCES

1. Historic Cultural Resources (12-month process [Appendix (g)(2)(B)]):

A description of all literature searches and field surveys used to provide information about known cultural resources in the project vicinity. If survey records of the area potentially physically affected by the project are not available, and the area has the potential for containing significant cultural resources, the applicant shall submit a new or revised survey for any portion of the area lacking comprehensive survey data. A discussion of the dates of the surveys, methods used in completing the surveys, and the identification and qualification of the individuals conducting the surveys shall be included.

Information required to make AFC conform with regulations:

Please provide the results of a cultural resources survey of the area surrounding the proposed power plant site and gas compressor station and conducted by an architectural historian or a historian with a background in industrial or architectural history. Identify and include descriptions of historic cultural resources (buildings, structures, objects, site, and districts) adjacent to the project site and gas compressor station (one property deep that appear to be 45 or more years old).

Provide a characterization of the area and include information regarding the transmission line that will be moved as a result of the project.

Response—Properties more than 45 years old in lots adjacent to the power plant site and natural gas compressor station include a small house at the auto dismantling business in the parcel immediately north of the City's property at the corner of Comstock Avenue and Lafayette Street, where the natural gas compressor station is located, and four small cottages at the south end of a lot located across Comstock Avenue from the City's parcel at Comstock Avenue and Lafayette Street. Forms DPR-523 are for these properties are attached. These properties lie outside of the project's Area of Potential Effects.

The project area is, for the most part, a modern industrial park containing both light and heavy industrial uses. Examination of the aerial photographs dating from 1957 obtained from the City of Santa Clara shows that, 45 years ago, most of the area along the old Lafayette Street north of the current Central Expressway (then Kifer Road) consisted of agricultural fields, with a few light industrial uses such as the Lafayette receiving/switching yard (current northern portion of the Kifer substation), and a few rural residences. At that time there were also some light industrial uses along Lafayette Street south of the current Central Expressway. Increasing economic activity brought expansion and growth to the project area. By 1968, the Bayshore Freeway (Highway 101) had been expanded, the alignment of Lafayette Street had been changed, some structures were demolished, new buildings were erected, and the Lafayette substation (Kifer substation) had been expanded (City of Santa Clara aerial photo 1968). Aerial photographs from June of 2002 illustrate the rapid growth of the project area. Very few original structures remain from 1957 and the once vast agricultural fields are entirely gone. The project area is currently a modern industrial park containing both light and heavy industrial uses.

The Kifer substation's original design and layout have completely changed in the last 45 years. In 1957 the substation consisted of four bays that housed the breakers and structural steel aluminum bus work, a control room, and associated equipment. A comparison of the substation equipment configurations shown in the 1957 and 2002 aerial photographs illustrate that all of the 1957 equipment and buildings

were removed and replaced with more modern equipment over the last five decades. The bays have been replaced and expanded, the control building was replaced, and the substation was expanded south. This analysis was confirmed my Mr. Mike Keller, Engineer Division Manager of Silicon Valley Power (personal comm., October 2002). Therefore, no historic buildings or structures exist at the substation. The transmission tower on the Pico project site is present in 1957 (see discussion below in response to item #2 and form DPR-523 attached).

2. Transmission Lines (12-month process [Appendix (g)(2)(C)]):

A discussion of the sensitivity of the project area described in subsection (g)(2)(A) and the presence and significance of any known archeological sites and other cultural resources that may be affected by the project. Information on the specific location of archeological resources shall be included in a separate appendix to the application and submitted to the Commission under a request for confidentiality pursuant to Title 20, California Code of Regulations, § 2501 et seq.

Information required to make AFC conform with regulations:

If transmission lines (lines that will be moved) or other cultural resources are more than 45 years old, please provide DPR Forms 523.

Provide a map (similar to Figure 8.3-1) that illustrates the relationship between the project components and cultural resources sites whether the sites were identified in the records search or by survey.

Response—One of the towers currently supporting the Newark to Kifer transmission line will be removed in order to construct the project. Based on aerial photographic analysis, this tower is greater than 45 years old. Form DPR-523 for the segment of the Newark to Kifer transmission line near the project site (between Kifer Substation and U.S. Highway 101) is attached. According to Mike Keller of Silicon Valley Power, this electrical transmission alignment may date to the 1940s. This segment of the Newark-Kifer transmission line, however, is not a significant historic resource and does not meet the criteria for listing on the California Register of Historical Resources. To make an argument for significance, it would be necessary to show that this segment of the transmission line was associated with significant events in California's or regional or local history; or that it was associated with significant technological advances, or with a person significant in national, regional, or local history; or that it is a well-preserved example of technology that is particularly representative of a type. This segment of the Newark to Kifer line clearly dates to some time after the construction of the Newark Substation in the 1920s. By this time, the major breakthroughs in the engineering of transmission lines had long been made and the basic outlines of California's transmission system had been drawn. The Newark-Kifer towers are a standard engineering design and may or may not be original equipment. For these reasons, this segment of the Newark-Kifer line is not a significant historical resource.

A consolidated map (Figure 8.3-S1) showing site locations is being filed at the CEC Dockets Office under a request for confidentiality.

DPR-523 FORMS

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI# _____
Trinomial _____
NRHP Status Code _____
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 **of** 5 ***Resource Name or #:** (Assigned by recorder) P2

P1. Other Identifier: 2979 Lafayette Street

***P2. Location:** [x] Not for Publication [] Unrestricted

***a. County:** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Milpitas Date: 1980 T 6S; R 1W; Section: 26; Mt. Diablo B.M.

c. Address: 2979 Lafayette Street City: Santa Clara Zip: 95050

d. UTM (Give more than one for large and/or linear resources) Zone: 10; 593,117 mE/ 4,136,895 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN# 224-36-016

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This parcel located at 2979 Lafayette is privately owned and contains a small rectangular commercial building and an adjacent shed. The rectangular building was constructed in 1950s and is topped by a composition shingle side gable roof with projecting eaves and wood fascia, an awning with wood post extends over the east side door. *See continuation sheet.*

***P3b Resource Attributes:** (List relevant attributes and codes) _____

***P4. Resources Present:** [x]Building [x]Structure [ ]Object [] Site [ ]Element of District [ ]Other (Isolates etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects)

P5b. Description of Photo (View, date, accession #)

2979 Lafayette, east face

***P6. Date Constructed/Age and Sources:** [ ] Prehistoric [x] Historic [ ] Both.
c.1950s-60s (1957 aerial photos, USGS 1953)

***P7. Owner and Address:**

Avery & Lois Preston, Cupertino CA

***P8. Recorded by:** (Name, affiliation, and address) J. Farrell
Foster Wheeler Environmental
3947 Lennane Drive, Suite 200
Sacramento, CA 95834-1957

***P9. Date Recorded:** 10/24/02

Form Prepared by: J. Farrell

***P10. Survey Type: (Describe)** [x] Intensive [ ] Reconnaissance [] Other: Pico Power Project.

***P11. Report Citation:** (Cite survey report and other sources, or enter "none") *See continuation sheet.*

***Attachments:** [ ] NONE [x] Location Map [ ] Sketch Map [x] Continuation Sheet [ ] Building, Structure, and Object Record
[ ] Archaeological Record [ ] District Record [ ] Linear Feature Record [ ] Milling Station Record [ ] Rock Art Record
[ ] Artifact Record [x] Photograph Record [ ] Other (List) _____

*P3a. The building sits on a concrete foundation with an added attached patio with a flat corrugated metal roof supported by three wood posts. The east side of the building has two single doors'; one leads to a cellar. An additional patio was added to the west side of the building with wood awning supported by wood post and enclosed with chicken wire. The exterior is clad with wood siding, the replacement windows are modern-double hung vertical sliders with original trim. The north face of the building has two modern replacement 8 pane casement windows, and a front gable attached porch that is supported by two wooden post.

*P11. Foster Wheeler Environmental. 2002. Application for Certification for the Pico Power Project, Santa Clara California. Submitted to the California Energy Commission by the Silicon Valley Power/City of Santa Clara.

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____
HRI # _____
Trinomial _____

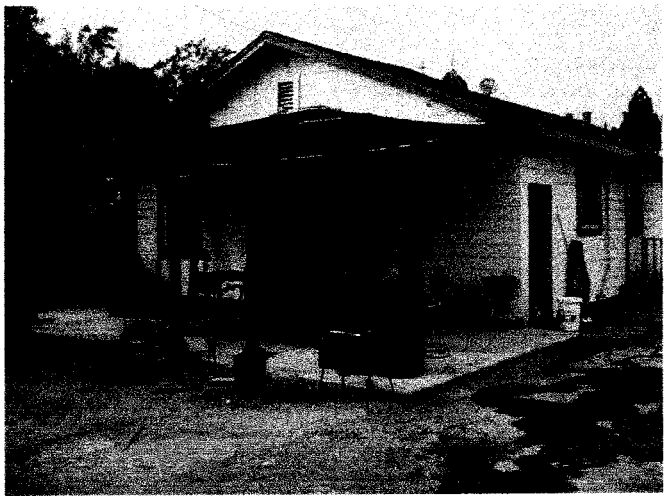
Page 3 **of** 5 ***Resource Name or #** (Assigned by recorder) P2

Recorded by: J.Farrell **Date:** 10/24/02

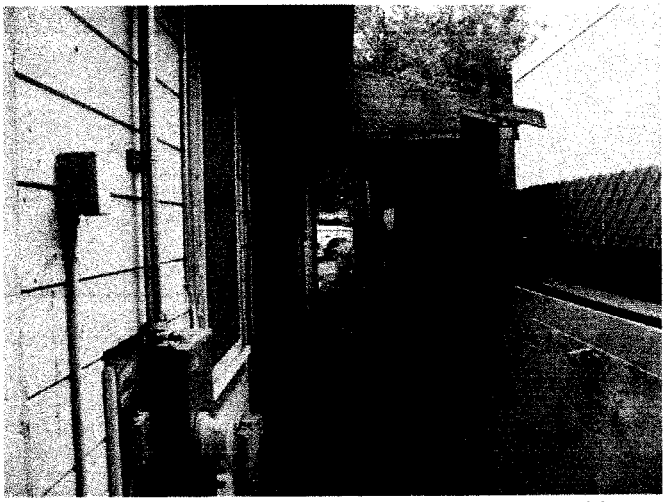
[X] **Continuation** [ ] **Update**

P5a

2. 2979 Lafayette St. building, north face.



3. 2979 Lafayette St., back patio, southeast corner.



4. 2979 Lafayette St. building added patio, west side.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PHOTOGRAPHIC RECORD

Primary #
HRI #
Trinomial

Page 4 **of** 5 **Project Name:** Pico Power Project **Year** 2002

Camera Format: Sony Cyber Shot DSC-P30 Lens Size: 38 – 115 mm equivalent
Resolution and Speed: 1.3 Megapixels (1600 x 1200), 2 – 1/1000sec File Type: .JPEG
Digital Files Kept at: Foster Wheeler Environmental Corporation

Date	Time	File Name	Subject/Description	View	Form #	Accession No.
10/25/02	4:00 PM	Pico Photos	2979 Lafayette St. east side of building	E	1	PPDR-002
10/25/02	4:00 PM	Pico Photos	2979 Lafayette St. north face of building		2	PPDR-001
10/25/02	4:00 PM	Pico Photos	2979 Lafayette St. pack patio	SE side	3	PPDR-003
10/25/02	4:00 PM	Pico Photos	2979 Lafayette St. west side addition	W side	4	PPDR-006

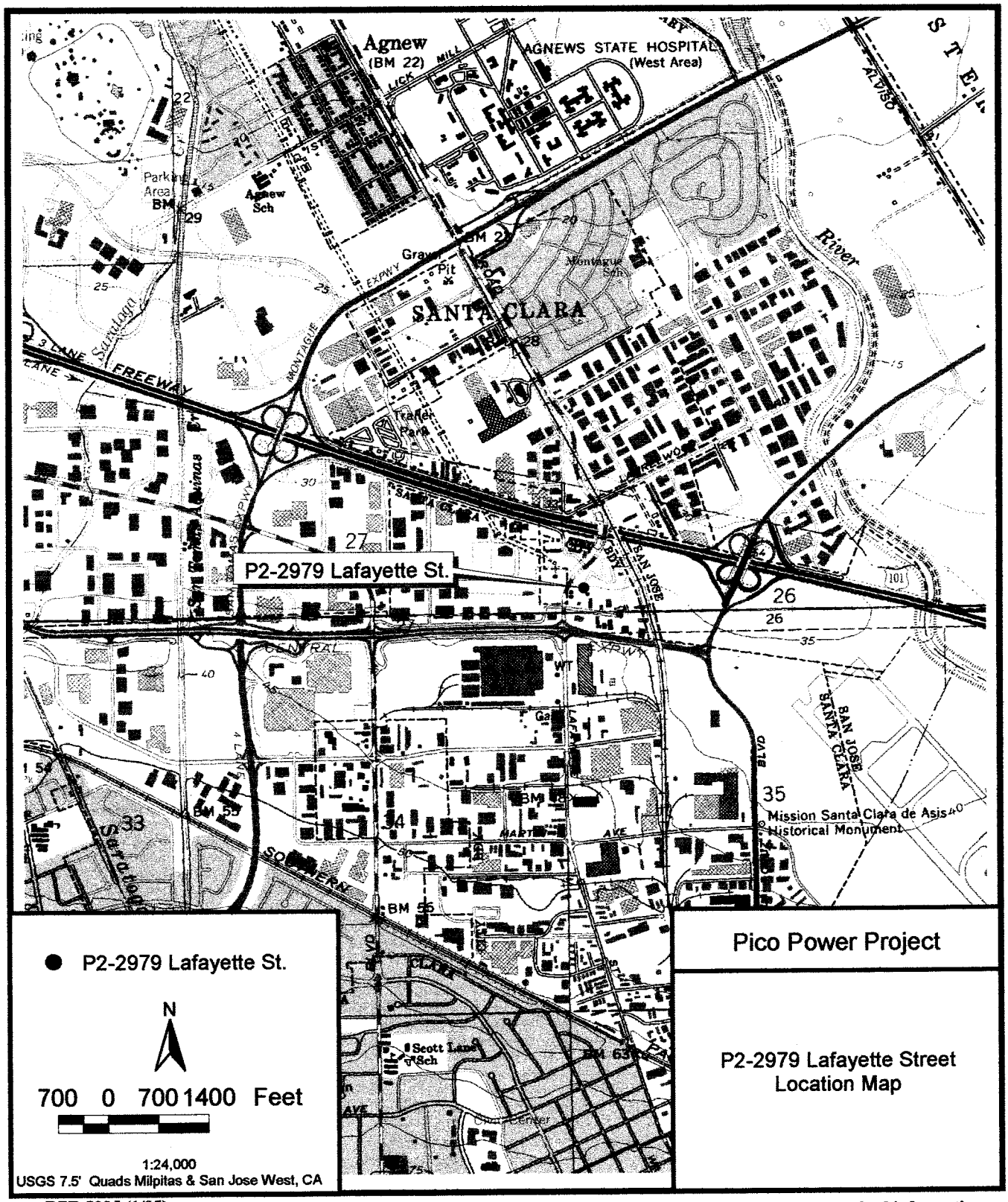
State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #: _____
HRI # _____
Trinomial _____

*Resource Name or # (Assingned by Recorder) P2

*Map Name: Milpitas and San Jose West *Scale: 1:24,000 *Date of Map: 1980



*required information

State of California -- The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # _____
HRI# _____
Trinomial _____
NRHP Status Code _____
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 **of** 5 ***Resource Name or #:** (Assigned by recorder) P3

P1. Other Identifier: 810 Comstock Street

***P2. Location:** [x] Not for Publication [] Unrestricted

***a. County:** Santa Clara **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Milpitas Date: 1980 T 6S; R 1W; Section: 26; Mt. Diablo B.M.

c. Address: 810 Comstock St. City: Santa Clara Zip: 95050

d. UTM (Give more than one for large and/or linear resources) Zone: 10; 593,152 mE/ 4,136,737 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN# 224-36-002

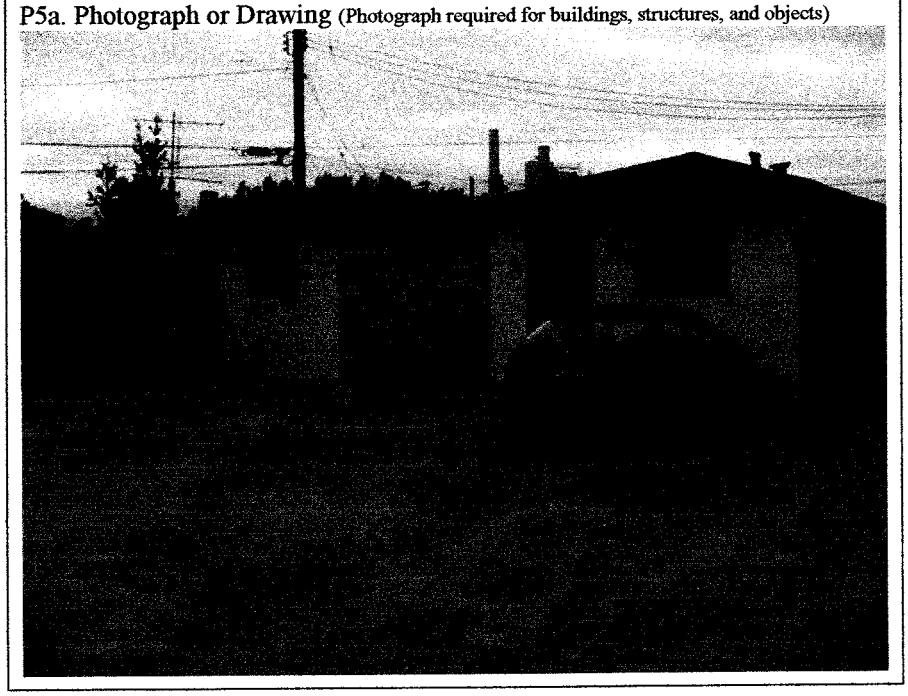
***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This parcel located at 810 Comstock and consists of four bungalow style units and an adjacent warehouse. The bungalow units were constructed in 1940-50s and are identical in construction. The bungalows are square in shape with a shingled-hipped gable roof, the exterior walls are sheathed in stucco siding, the foundations are concrete, and each unit has replacement horizontal slider windows. *See continuation sheet.*

***P3b Resource Attributes:** (List relevant attributes and codes) _____

***P4. Resources Present:** [x]Building [x]Structure [ ]Object [] Site [ ]Element of District [ ]Other (Isolates etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects)



P5b. Description of Photo (View, date, accession #)

1. 810 Comstock St. Unit 3 and 4

***P6. Date Constructed/Age and Sources:** [ ] Prehistoric [x] Historic [ ] Both. c.1940-50s (1957 aerial photos, USGS 1953)

***P7. Owner and Address:** _____

***P8. Recorded by:** (Name, affiliation, and address) J. Farrell
Foster Wheeler Environmental
3947 Lennane Drive, Suite 200
Sacramento, CA 95834-1957

***P9. Date Recorded:** 10/24/02

Form Prepared by: J. Farrell

***P10. Survey Type: (Describe)** [x] Intensive [ ] Reconnaissance [ ] Other: Pico Power Project

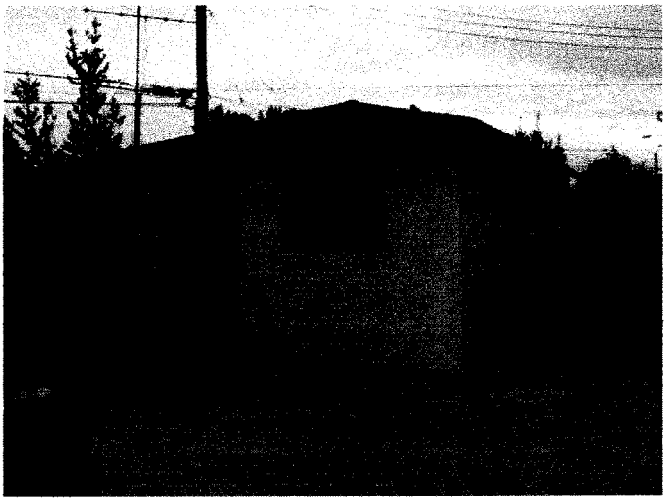
***P11. Report Citation:** (Cite survey report and other sources, or enter "none") *See continuation sheet.*

***Attachments:** [ ] NONE [x] Location Map [ ] Sketch Map [x] Continuation Sheet [ ] Building, Structure, and Object Record
[ ] Archaeological Record [ ] District Record [ ] Linear Feature Record [ ] Milling Station Record [ ] Rock Art Record
[ ] Artifact Record [ ] Photograph Record [ ] Other (List) _____

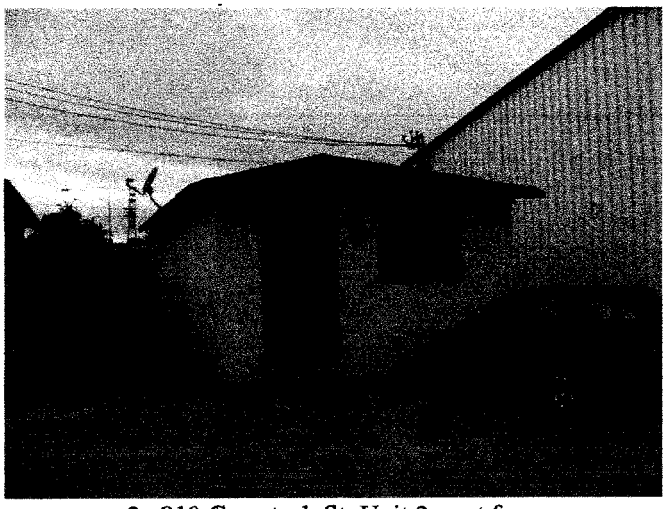
*P3a. Each unit has a single replacement front door and one exterior modern light fixture.

*P11. Foster Wheeler Environmental. 2002. Application for Certification for the Pico Power Project, Santa Clara California. Submitted to the California Energy Commission by the Silicon Valley Power/City of Santa Clara.

P5a

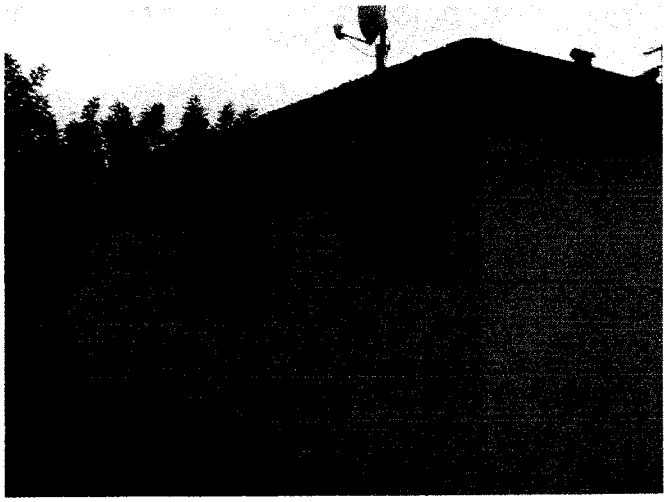


2. 810 Comstock St. Unit 1, east face.



3. 810 Comstock St. Unit 2, east face.

4. 810 Comstock St. Unit 3 and 4, west face.



5. 810 Comstock St. Unit 3 and 4, northeast corners.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PHOTOGRAPHIC RECORD

Primary #
HRI #
Trinomial

Page 4 **of** 5 **Project Name:** Pico Power Project **Year** 2002

Camera Format: Sony Cyber Shot DSC-P30 Lens Size: 38 – 115 mm equivalent
Resolution and Speed: 1.3 Megapixels (1600 x 1200), 2 – 1/1000sec File Type: .JPEG
Digital Files Kept at: Foster Wheeler Environmental Corporation

Date	Time	File Name	Subject/Description	View	Form #	Accession No.
10/25/02	4:00 PM	Pico Photos	810 Comstock St. Unit 1 and 2	E face	1	PPDR-013
10/25/02	4:00 PM	Pico Photos	810 Comstock St. Unit 1	E face	2	PPDR-009
10/25/02	4:00 PM	Pico Photos	810 Comstock St. Unit 2	E face	3	PPDR-008
10/25/02	4:00 PM	Pico Photos	810 Comstock St. Unit 3 and 4 front	W face	4	PPDR-006
10/25/02	4:00 PM	Pico Photos	810 Comstock St. Unit 3 and 4 back	NE corner	5	PPDR-007

DPR 523I (1/95)

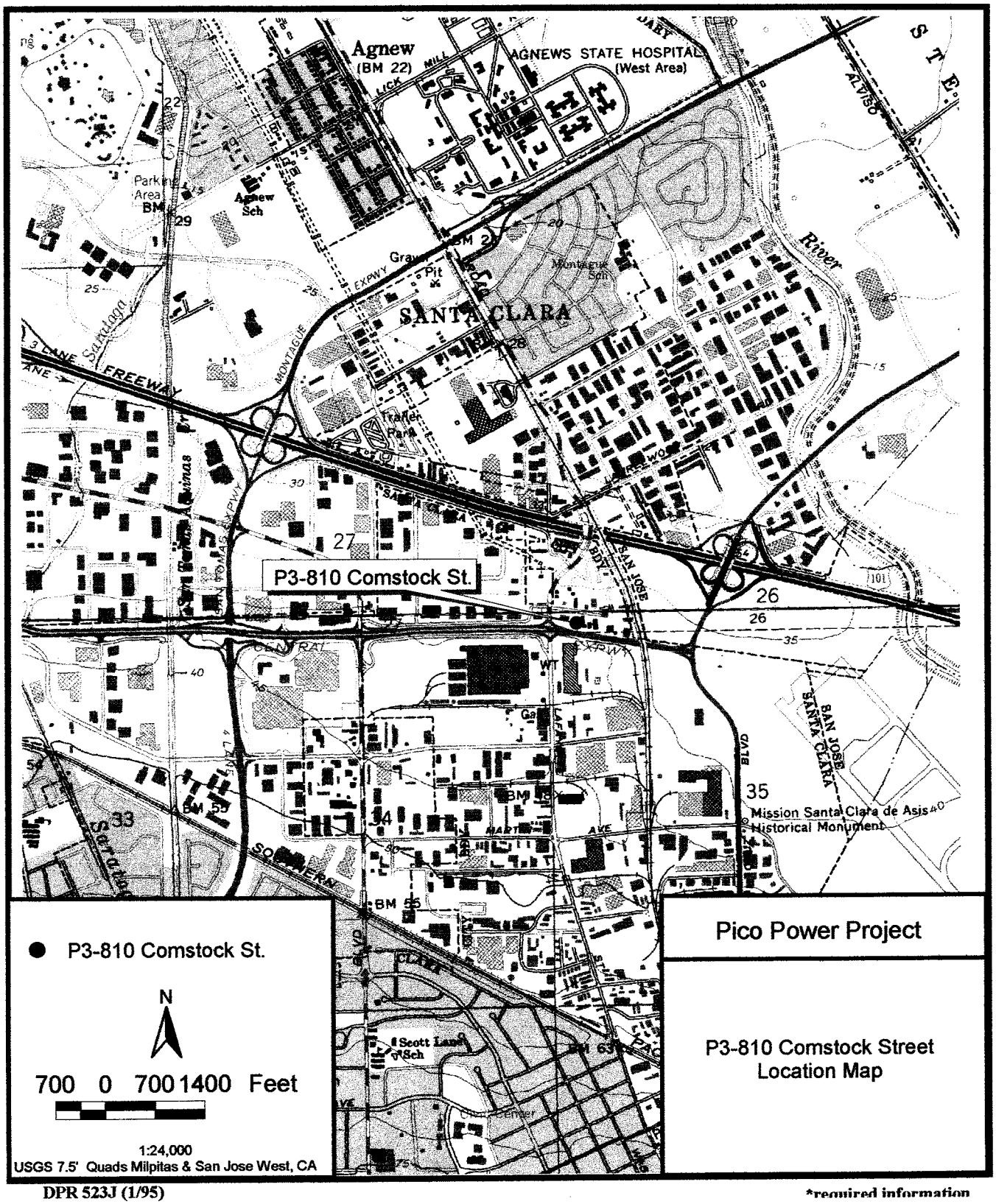
State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #: _____
HRI # _____
Trinomial _____

*Resource Name or # (Assingned by Recorder) P3

*Map Name: Milpitas and San Jose West *Scale: 1:24,000 *Date of Map: 1980



*required information

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI#
Trinomial
NRHP Status Code
Other Listings
Review Code Reviewer Date

Page 1 **of** 6 ***Resource Name or #:** (Assigned by recorder) P4

P1. Other Identifier: Newark-Kifer 115kV Transmission Line

***P2. Location:** [x] **Not for Publication** [ ] **Unrestricted**

***a. County:** Alameda **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Milpitas **Date:** 1980 **T** 6S; **R** 1E; Sections unsectioned Mt. Diablo **B.M**

c. Address: N/A City: Zip:

d. UTM (Give more than one for large and/or linear resources) Zone: 10; *See Continuation Sheet for a list of UTM coordinates.*

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The resource consists of a segment of the Newark-Kifer 115kV-transmission line. *(See Continuation Sheet)*

***P3b Resource Attributes:** (List relevant attributes and codes) HP39-Utility Line

***P4. Resources Present:** [ ]Building [x]Structure [ ]Object [ ]Site [ ]Element of District [ ]Other (Isolates etc.)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects)

See Continuation Sheet.

P5b. Description of Photo (View, date, accession #) See Continuation Sheet.

***P6. Date Constructed/Age and Sources:** [ ] Prehistoric [x] Historic [ ] Both c. 1940s

***P7. Owner and Address:**
Silicon Valley Power

***P8. Recorded by:** (Name, affiliation, and address) J.Farrell
Foster Wheeler Environmental
3947 Lennane Drive, Suite 200
Sacramento, CA 95834-1957

***P9. Date Recorded:** 10/24/02
Form Prepared by: J. Farrell

***P10. Survey Type: (Describe)** [x] Intensive [ ] Reconnaissance [ ] Other: Pico Power Project

***P11. Report Citation:** (Cite survey report and other sources, or enter "none") See Continuation Sheet.

***Attachments:** [ ] NONE [x] Location Map [ ] Sketch Map [x] Continuation Sheet [ ] Building, Structure, and Object Record
[ ] Archaeological Record [ ] District Record [ ] Linear Feature Record [ ] Milling Station Record [ ] Rock Art Record
[ ] Artifact Record [x] Photograph Record [ ] Other (List)

*P2d.

	UTMs	
Tower at plant site	592,974 m/E	4,137,001m/N
West	592,939 m/E	4,137,042 m/N
Northwest	592,751 m/E	4,137,128 m/N
North	592,629 m/E	4,137,347 m/N

*P3a. This segment of transmission line was constructed pre-World War II (c.1940's) and consists of galvanized steel towers and overhead wires. The original transmission alignment crossed Lafayette Road (southeast) until 1957, when the Kifer switching station was constructed and split the line. From the 1950s to present, the transmission lines have been continually upgraded and additional equipment has been added with advancing energy technology. All the equipment (breakers, control room, bus work, etc.) for the Kifer substation has been replaced and upgraded.

*P11.

Foster Wheeler Environmental. 2002. Application for Certification for the Pico Power Project, Santa Clara California. Submitted to the California Energy Commission by the Silicon Valley Power/City of Santa Clara.

*B10

The transmission line does not appear eligible under criterion 2 or B for the NRHP or the CRHR: Is associated with the lives of persons important from our past. The Newark-Kifer transmission line segment is not associated with any important person from our past. The transmission line segment does not appear eligible under Criterion 3 or C of the CRHR or the NRHP: It does not embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values. This transmission line segment is not distinctive because it is not the first of it kind, time, or region. The integrity of the line has been altered. The Kifer switching station was constructed in 1957 and split the line, changing its original alignment at old Lafayette St. From the 1950s to present the transmission lines have been continually upgraded and additional equipment has been added with advancing new energy technology. All the equipment (breakers, control room, bus work, etc.) for the Kifer substation has been replaced and upgraded. The Newark-Kifer transmission line does not appear eligible under criterion 4 or C of the CRHR and NRHP because it is not likely to yield information important to history. Although the original transmission segment dates to c. 1940s, the line's alignment has been altered and the towers and lines have been upgraded and additional equipment has been added. Therefore, the Newark-Kifer line does not exemplify the ability to yield or may likely yield information important to history or to California's energy history.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
BUILDING, STRUCTURE, AND OBJECT RECORD

Primary #
HRI #
Trinomial

Page 3 of 6 *Resource Name or # (Assigned by recorder) P4

B1. Historic Name: 115kV Newark-Kifer Line **B2. Common Name:** Transmission Line

B3. Original Use: Electricity distribution

B4. Present Use: Electricity distribution

***B5.** Architectural Style: Steel tower transmission line.

***B6.** **Construction History:** (Construction date, alterations, and date of alterations)
This segment of transmission line was constructed pre-World War II (c.1940's) and consist of galvanized steel towers and overhead wires. The original transmission alignment crossed Lafayette Road (southeast) to San Jose until 1957, when the Kifer switching station was constructed and split the line. From the 1950s to present the transmission lines have been continually upgraded and additional equipment has been added with advancing new energy technology. All the equipment (breakers, control room, bus work, etc.) for the Kifer substation has been replaced and upgraded (Keller 2002, personal comm.).

***B7.** **Moved?** [] No [x] Yes [ ] Unknown **Date:** 1957 **Original Location:** Crossed Lafayette Street South

***B8.** **Related Features:** None

B9a. Architect: PG&E b. Builder: PG&E

***B10** **Significance: Theme** Energy Infrastructure **Area:** Santa Clara, CA

Period of Significance: **Property Type:** **Applicable Criteria:** N/A

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
This segment of the 115kV Newark-Kifer transmission line does not appear to be eligible to the National Register of Historic Places (CRHP) or the California Register of Historical Resources (CRHR) under criterion 1 or A: it is not associated with events that have made a significant contribution to the broad patterns of history or California History. *See Continuation Sheet.*

B11. Additional Resource Attributes: (list attributes and codes) N/A

***B12** **References:** and Personal Communication between Mike Keller (Silicon Valley Power, Division Engineer Manager), and Jenna Farrell (Foster Wheeler Corporation). October 25, 2002.

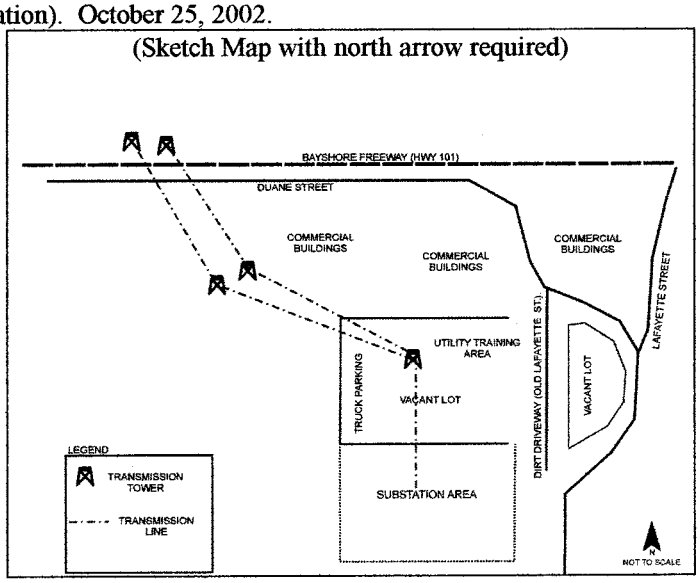
B13. Remarks:

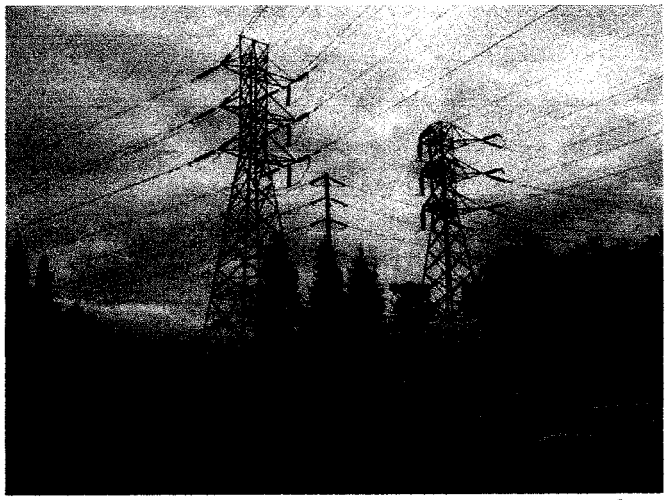
***B14.** **Evaluator:** J.Farrell

***Date of Evaluation:** 10/25/02

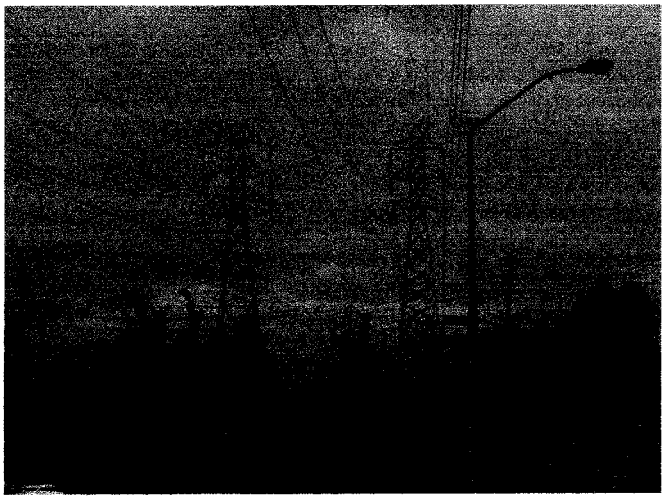
(This space reserved for official comments)

(Sketch Map with north arrow required)

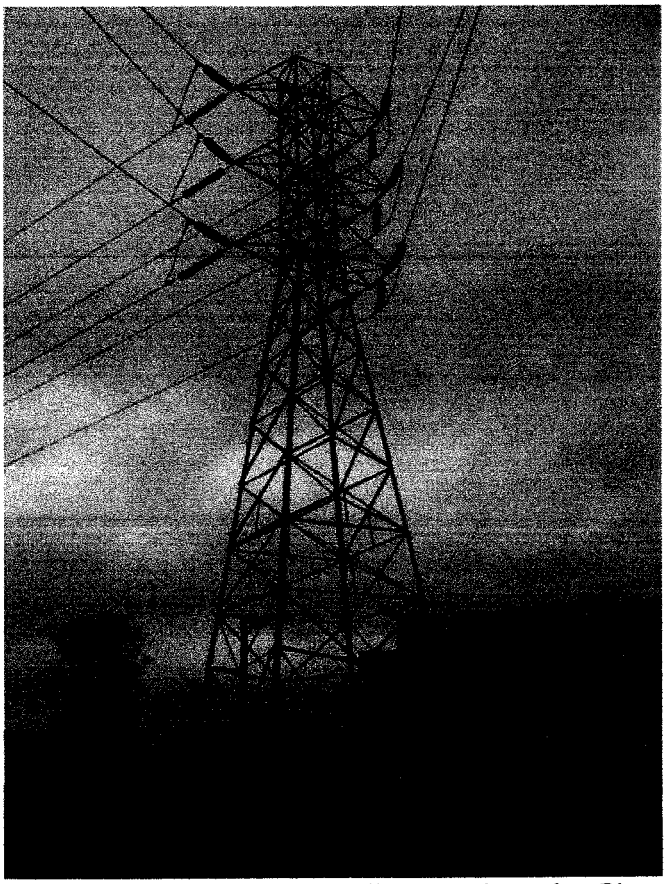




1. Newark-Kifer 115kV-transmission towers west of substation.



2. Newark-Kifer 115kV-transmission line towers heading north, across Bayshore Highway.



3. Newark-Kifer Transmission line tower located on Pico Power Project site.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPHIC RECORD

Primary #
HRI #
Trinomial

Page 5 **of** 6 **Project Name:** Pico Power Project **Year** 2002

Camera Format: Sony Cyber Shot DSC-P30 Lens Size: 38 – 115 mm equivalent
Resolution and Speed: 1.3 Megapixels (1600 x 1200), 2 – 1/1000sec File Type: .JPEG
Digital Files Kept at: Foster Wheeler Environmental Corporation

Date	Time	File Name	Subject/Description	View	Form #	Accession No.
10/24/02	5:00 PM	Pico Power Project	Transmission Towers	SE	1	PPDR-031
10/24/02	5:00 PM	Pico Power Project	Transmission Towers	NW	2	PPDR-032
10/24/02	5:00 PM	Pico Power Project	Transmission Tower at Plant Site	NW	3	PPDR-019

DPR 523I (1/95)

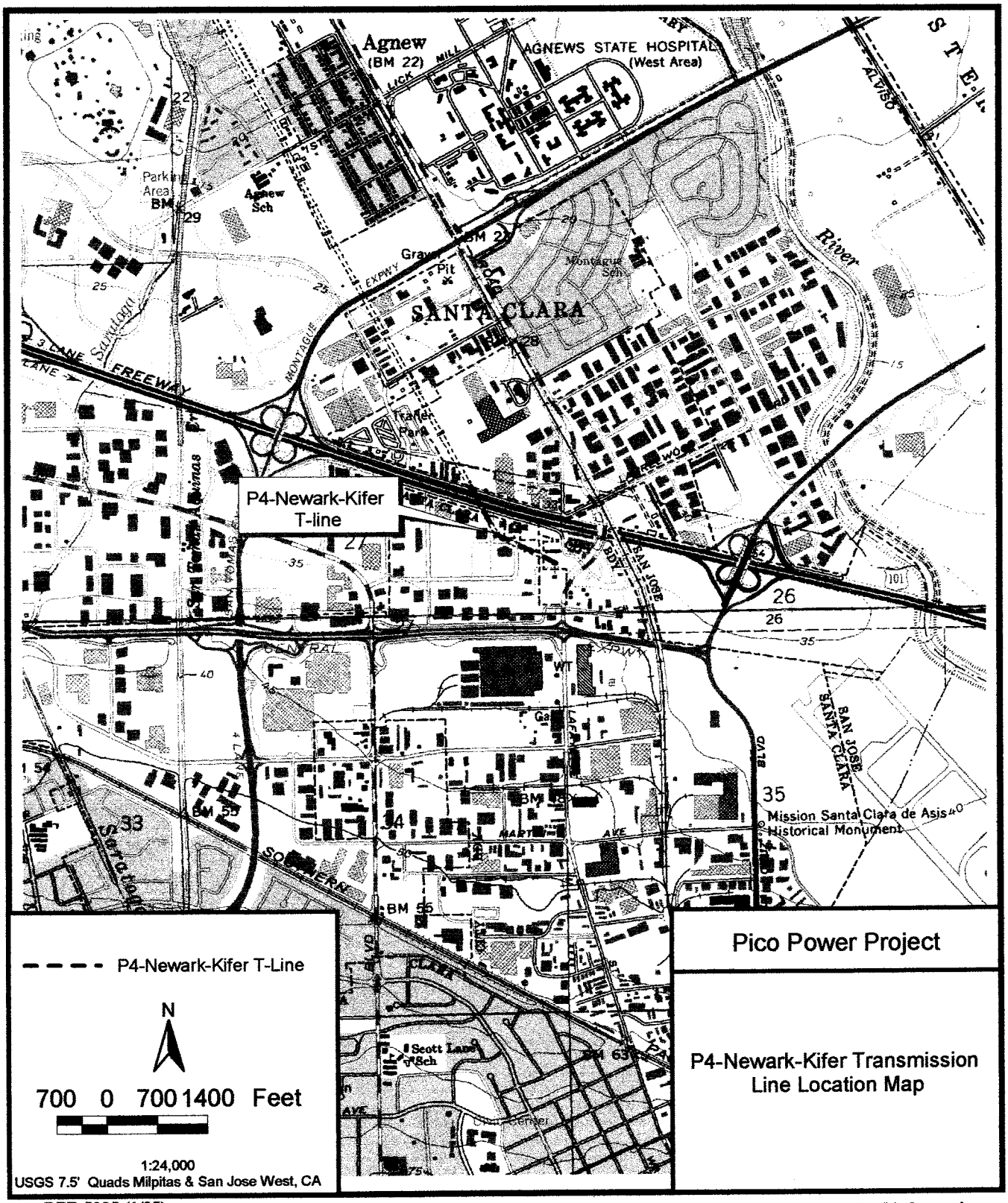
State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #: _____
HRI # _____
Trinomial _____

*Resource Name or # (Assingned by Recorder) P4

*Map Name: Milpitas and San Jose West *Scale: 1:24,000 *Date of Map: 1980



*required information

8.4 GEOLOGICAL RESOURCES AND HAZARDS

1. Gravel Pit Map (12-month process [Appendix B(g)(17)(C)]):

A map and description of geologic resources of recreational, commercial, or scientific value which may be affected by the project. Include a discussion of the techniques used to identify and evaluate these resources.

Information required to make AFC conform with regulations:

Provide a map showing the location of the gravel pit with respect to the project and associated linears.

Response—The gravel pit is located across the Union Pacific Railroad tracks and west of the Lafayette Street route of the natural gas pipeline route. The project would not affect this gravel pit or associated mineral resources, since the pipeline is located in a city roadway that is not available for gravel removal. The location of this gravel pit is shown in AFC Figure 8.4-1. Attached is Figure 8.4-S1 showing this location more clearly.

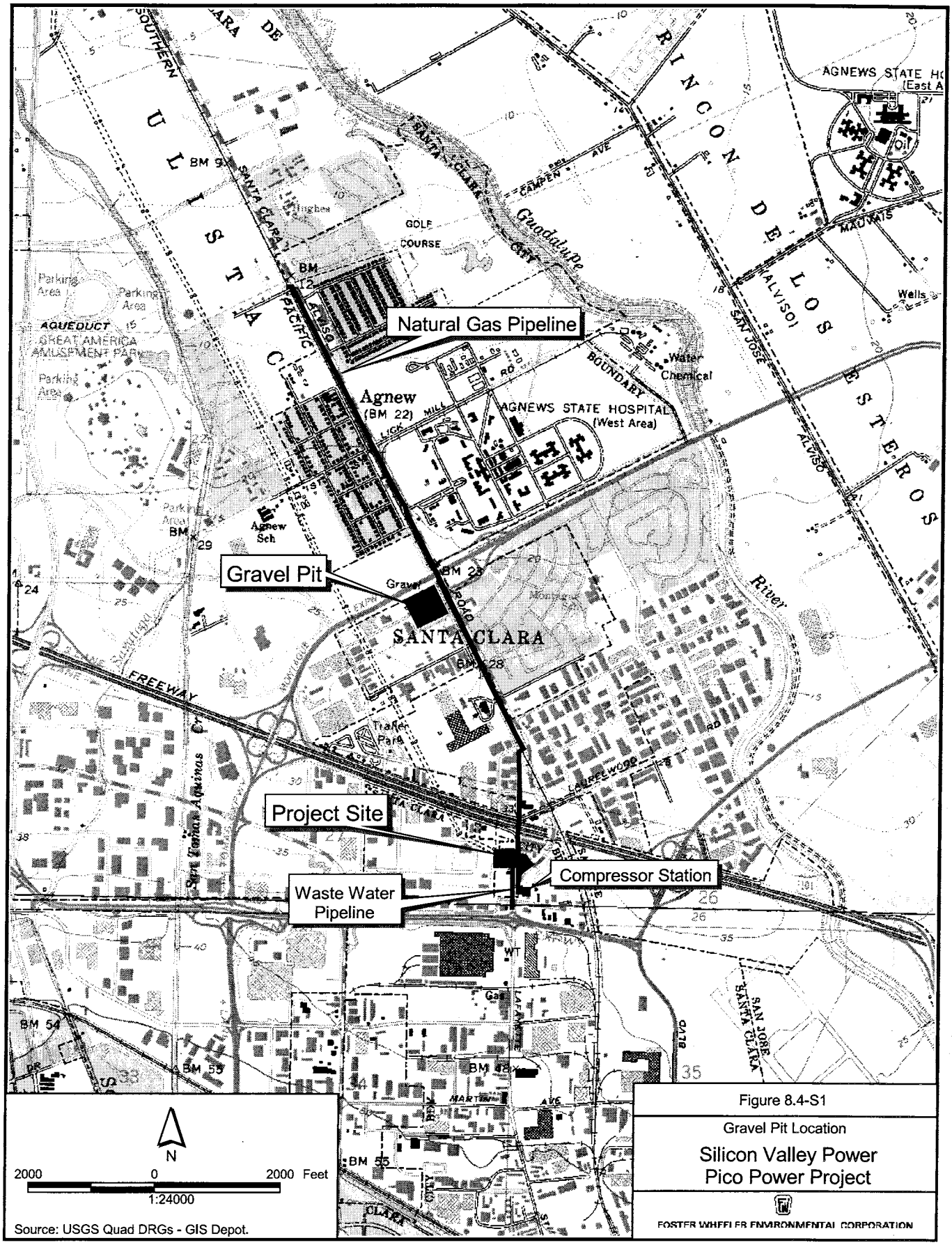


Figure 8.4-S1

Gravel Pit Location

Silicon Valley Power
Pico Power Project

FOSTER WHEELER ENVIRONMENTAL CORPORATION

8.10 SOCIOECONOMICS

1. School impact fees (12-month process [Appendix B(g)(7)(B)(vi)]):

An estimate of applicable school impact fees.

Information required to make AFC conform with regulations:

An estimate of applicable school impact fees.

Response—As the AFC states on page 8.10-10, "As a municipal government, the City of Santa Clara will not be required to pay property taxes or school impact fees for the project." Page 8.10-12 says "the PPP will be required to pay a school impact fee because Silicon Valley Power is a department of the City of Santa Clara." This is a typographical error. The sentence should read "the PPP will <u>not</u> be required to pay a school impact fee because Silicon Valley Power is a department of the City of Santa Clara."

8.11 SOILS AND AGRICULTURE

1. Compliance with LORS (6-month expedited process [§2022(b)(1)(B)]):

Information demonstrating that the project as proposed in the application will comply with all such standards, ordinances, and laws.

Information required to make AFC conform with regulations:

Please provide substantial evidence and information demonstrating that the project as proposed in the application will comply with all standards, ordinances, and laws applicable at the time of certification. The project must demonstrate compliance with all LORS. (More information is required to achieve data adequacy for the six-month process than the standard process. The application should show substantial evidence that the project will not have an adverse impact.)

Response—Section 8.11.2 of the AFC provides substantial evidence that the project will not have a significant adverse effect on the environment and will comply with all applicable LORS. This section discusses potential construction and operation impacts in detail, proposes specific erosion control measures, and concludes that the mitigation measures proposed will be 90 percent or more effective such that any residual project effects will be below the level of significance. Section 8.11.4 describes the mitigation measures proposed and Section 8.11.5 lists the applicable LORS, permit requirements, and agency contacts. We have added to the LORS table (Table 8.11-S1, below) and consolidated information in previous tables so that the connections between the individual permits required, agencies, and their schedules and requirements will be more clear. Section 8.15 (Water Resources) of this document also contains additional information about permit requirements having to do with soil and water quality.

The federal requirements under the Clean Water Act of 1977(CWA) are administered under the California's Regional Water Quality Control Board (RWQCB) National Pollution Discharge Elimination System (NPDES). The project will comply with the NPDES permit requirements by generating a Storm Water Pollution Prevention Plan (SWPPP), which identifies the most appropriate best management practices (BMPs) to be implemented during and following site construction. Adherence to the SWPPP will mitigate the potential for adverse impacts to the environment and also meets the local drainage and erosion control requirements. Table 8.11-S2 lists the types of BMPs that may be included in the SWPPPs when these are prepared to meet the NPDES permit requirements before construction and operation, and their estimated effectiveness. The NDPES specifications also require a plan for monitoring storm water during major storms to determine the effectiveness of the management practices and erosion control measures. The PPP project SWPPPs would thus include a storm water monitoring plan and measures to observe and verify the effectiveness of the storm water and erosion control BMPs and other methods and techniques. Preparing and following these plans ensures that the PPP project would not have a significant adverse effect on soils or on water quality (see also Section 8.15). The standard measures as required by the EPA, State Water Resources Control Board, and Regional Water Quality Control Board have proven effective in many projects in reducing potential impacts below the level of significance.

Table 8.11-S1. Laws, ordinances, regulations and standards, administering agencies, agency contacts, and requirements for compliance.

Conformance (Section)	Jurisdiction	Authority	Applicability	Administering Agency	Contact, Title and Telephone	Requirements/Compliance
Section 8.11.4	Federal	Clean Water Act of 1977 (including 1987 amendments) 33 USC § 1342	These authorities establish requirements for any facility or activity which has or which will discharge wastes (including sediment due to accelerated erosion) that may interfere with the beneficial uses of affected waters.	RWQCB	Leo Sarmiento Water Quality Engineer (916) 255-3049	Project will implement erosion control measures such that it will meet discharge requirements relative to sediment due to accelerated erosion.
Section 8.11: Agriculture and Soils (all).	State	Cal. Pub. Res. Code § 25523(a); CCR §§ 1752, 1752.5, 2300 - 2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (I)	Provides for the protection of environmental quality and requires submission of information to the CEC concerning potential environmental impacts to agriculture and soils.	CEC		Project will submit information to the CEC concerning potential environmental impacts, including impacts to agriculture and soils.
Section 8.11.5.2		California Environmental Quality Act, California Public Resources Code § 21000 *et seq.;* Guidelines for Implementation of the California Environmental (Quality Act of 1970, 14 CCR § 15000 - 15387, Appendix G	Environmental protection	CEC		PPP will not cause substantial flooding, erosion or siltation and, therefore, will not have a significant impact.
Section 8.11.4		California Porter-Cologne Water Quality Control Act of 1972; Cal. Water Code, § 13260 – 13269, 23 CCR Chapter 9	Controls erosion of soil and disruption or displacement of surface soil. The RWQCB implements the NPDES permit requirements.	CEC, the RWQCB and the State Water Resources Control Board	Leo Sarmiento Water Quality Engineer (916) 255-3049	Project will provide adequate protection of water quality by appropriate design, sizing and construction of erosion and sediment controls; it will also fulfill waste discharge requirements concerning potential surface water pollution from project area runoff (Storm Water Pollution Prevention Plan). An NPDES General Permit for Storm Water Discharges Associated with construction activities will include the following elements: • Submit Notice of Intent (NOI), including facility information, receiving water information, implementation requirements, site map, and certification • Prepare a Storm Water Pollution Prevention Plan (SWPPP)

Table 8.11-S1. Laws, ordinances, regulations and standards, administering agencies, agency contacts, and requirements for compliance.

Conformance (Section)	Jurisdiction	Authority	Applicability	Administering Agency	Contact, Title and Telephone	Requirements/Compliance
						• Prepare a Storm Water Monitoring Plan (SMP)
Section 8.11.5.3	Local	City of Santa Clara	Soil loss controls	City of Santa Clara Planning and Public Works Department	Art Henriques City Planner (408) 615-2450 Steve Yoshino Director of Public Works (408) 615-2440 x 3000	Project will comply with the following Grading/Drainage/Erosion Control Permit Requirements: • Engineered Grading Plan • Topographic Plan • Drainage controls • Surface Hydrology Report • Geotechnical/Geological Hazard Evaluation • Identify material source or disposal location and haul route • Erosion and Dust Control Plan • Traffic Control Plan
Section 8.11.5.4 and 8.11.5.5	Industry Standard	Soil Conservation Service (SCS), *National Engineering Handbook* (1983), Sections 2 and 3	Soil loss controls	U.S. Department of Agriculture (Natural Resources Conservation Service) and California Department of Conservation	NA	Project will implement standards for the planning, design, soil conservation practices and protection of prime agricultural land.

Table 8.11-S2. Best Management Practices and their effectiveness.

Practice	Percent effectiveness
Construct silt fence	70%
Construct sedimentation trap	70%
Install sod	99%
Lay sand bags	40%
Provide a vegetation buffer	90%

Source: United States Environmental Protection Agency. 1993. Guidance specifying management measures for sources of non-point pollution in coastal waters. EPA 840-B-92-002. USEPA, Office of Water, Washington, DC (http:/cfpub.epa.gov/npdes/stormwater/menuofbmps/

2. Changes to LORS (6-month expedited process [§2022(b)(1)(C)]):

Where a standard, ordinance, or law is expected to change between the time of filing an application and certification, information from the responsible jurisdiction documenting the impending change, the schedule for enactment of the change, and whether the proposed project will comply with the changed standard, ordinance, or law.

Information required to make AFC conform with regulations:

Please provide a statement addressing this section.

Response—In the AFC Water Resources Section (Section 8.15, page 8.15-22), we discuss the EPA's recent rules for Phase II of the NPDES storm water program. Phase II governs small construction sites between 1 and 5 acres. Phase II rules became final on December 8, 1999, and small construction permits are due by March 10, 2003. Although the Phase II rules are not new during the coming six months, their applicability is new. Other than the Phase II rule schedule, we are unaware of any proposed or potential changes in the applicable LORS for the next six months. If such changes are promulgated, Silicon Valley Power will comply with them.

3. Permit list (6-month expedited process [§2022(b)(1)(D)]):

A list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive jurisdiction of the commission, and the information necessary to meet those requirements.

Information required to make AFC conform with regulations:

Please provide a list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive jurisdiction of the commission, and the information necessary to meet those requirements.

Response—The following is additional text regarding the permit requirements for the project. Table 8.11-S1 (above) consolidates information about the LORS applicable to the project, permit requirements, and agencies responsible for permitting. Section 8.15 of this document also contains text and tables with additional information about permitting requirements for soils and water quality.

Federal Requirements—The Clean Water Act (CWA) authorizes the USEPA to regulate discharges of waste water and storm water into surface waters by using NPDES permits and pretreatment standards. These permits are implemented at the state level by the State Water Resources Control Board (SWRCB),

but the USEPA may retain jurisdiction at its discretion. The primary interest of the CWA in the current project concerns soil erosion control during construction, and the need to prepare and execute site-specific erosion control measures for construction of each element of the project that will entail physical disruption or displacement of surface soil.

State Requirements—California Public Resources Code [§ 25523(a); CCR §§ 1752, 1752.5, 2300-2309, and Chapter 2, -Subchapter 5. Article 1. Appendix B. Part (i)] provides authority for the protection of environmental quality. With respect to the PPP and agriculture and soils, it requires submission of information to the CEC concerning potential environmental impacts to agriculture and soils. The administering agency for the above authority is the CEC.

The State of California Porter-Cologne Act ("California Clean Water Act") is applicable to agriculture and soils. This law regulates discharges to waters of the state. The Porter-Cologne Act is not directly applicable to the PPP, however, because the project will not discharge directly to waters of the state. In addition, the SWRCB, which controls surface water discharge, may become involved indirectly through a discharge National Pollution Discharge Elimination System permit if a surface discharge during construction were to cause soil erosion (see Section 8.15, Water Resources).

Concerning potential surface water pollution from project area runoff, the waste discharge requirements may incorporate requirements based on the following sources of recommended methods and procedures:

- State water Resources Control Board. 1996. *Erosion and Sediment Control Field Manual.*
- US EPA. 1973. *Processes, Procedures and Methods to Control Pollution resulting From All Construction Activity.* Presents information on processes, procedures, and methods for controlling sediment, storm water, and pollutants form construction activities.
- California Department of Resources Conservation. 1978. *Erosion and Sediment Control Handbook.* Provides procedures by which physical and climatic data and erosion control practices can be considered in making an assessment of a site for determining the need for an erosion control plan and for preparing an erosion control plan.

Local Requirements—The City of Santa Clara has local authority for the project related grading and excavation activities; and defers to the NPDES permit requirements regarding storm water pollution control. Specifically, the City requires that a Storm Water Pollution Prevention Plan (a requirement under the NPDES permit) be prepared and submitted prior to site development activities.

Industry Codes and Standards—The U.S. Department of Agriculture prescribes standards of technical excellence for the soil conservation service, now called the Natural Resources Conservation Service (NRCS) for the planning, design, and construction of soil conservation practices. This is described in the *U.S. Department of Agriculture, Soil Conservation Service (SCS), National Engineering handbook (1983).*

Project Compliance with Agricultural and Soils LORS—The project will obtain a General NPDES Construction Activity stormwater permit from the San Francisco Bay Regional Water Quality Control Board and will grade and excavate in accordance with approved grading plans to reduce soil erosion from development of the project. For operation, the project will obtain a General Industrial NPDES Stormwater Permit from the San Francisco Bay Regional Water Quality Control Board (see also Water Resources, Section 8.15).

To obtain the Construction Activity NPDES permit, Silicon Valley Power will file a Notice of Intent at before the start of construction, along with the Storm Water Pollution Prevention Plan (SWPPP) for construction. For the General Industrial NPDES permit, Silicon Valley Power must file a Notice of Intent at least 14 days before commencing power plant operation.

The following lists the information requirements for the various permits:

Grading/Drainage/Erosion Control Permit (City of Santa Clara)

- Engineered Grading Plan
- Topographic Plan
- Drainage Controls
- Surface Hydrology Report
- Geotechnical/Geological Hazard Evaluation
- Identify material source or disposal location and haul route
- Erosion and Dust Control Plan
- Traffic Control Plan

NPDES General Permit for Construction (Regional Water Quality Control Board)

- Notice of Intent Application
- Stormwater Pollution Prevention Plan (construction)
- Storm Water Monitoring Program (construction)

NPDES General Permit for Industrial Activity (Regional Water Quality Control Board)

- Notice of Intent Application (Form NOI-1)
- Site map
- Stormwater Pollution Prevention Plan (operation)
- Storm Water Monitoring Program (operation)
- Annual report (part of monitoring plan)

4. Permit list (6-month expedited process [§2022(b)(1)(D)]):

A list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive jurisdiction of the commission, and the information necessary to meet those requirements.

Information required to make AFC conform with regulations:

Please provide a list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive jurisdiction of the commission, and the information necessary to meet those requirements (SWPPP, etc.).

Response—AFC Table 8.11-3 lists the permits required and Section 8.11.5 describes them. Table 8.11-5 lists all of the information necessary to meet the requirements (contents of plans and permit applications). Local and state permits were not included in Table 8.11-3 because of the CEC's overriding jurisdiction. These tables have been reformatted to include the local permits. Please note that the construction and operation NPDES storm water permits are discussed in the Water Resources section (8.15) as water quality permits (though they might also be considered soil erosion control permits). This

discussion includes the Storm Water Pollution Prevention Plan (SWPPP). This information has been included in Table 8.11-S1 (above).

5. Fill material characteristics (12-month process [Appendix B(g)(15)(A)(i)]):

The depth, texture, permeability, drainage, erosion hazard rating, and land capability class of the soil.

Information required to make AFC conform with regulations:

Please provide the depth, texture, permeability, drainage, erosion hazard rating, and land capability class of the surface fill material.

Response—The AFC states that the power plant site is covered in 12 inches of sandy gravel. This information was based on a geotechnical report that included the entire Kifer Receiving Station and is in error for the Pico project site, though it does apply to the Kifer Receiving Station. Soil characteristics of the Sunnyvale Clay are listed in AFC Table 8.11-2.

6. Fill material characteristics (12-month process [Appendix B(g)(15)(A)(ii)]):

An identification of other physical and chemical characteristics of the soil necessary to allow an evaluation of soil erodibility, permeability, re-vegetation potential, and cycling of pollutants in the soil-vegetation system.

Information required to make AFC conform with regulations:

Please provide an identification of other physical and chemical characteristics of the soil necessary to allow an evaluation of soil erodibility, permeability, re-vegetation potential, and cycling of pollutants in the soil-vegetation system for the fill material.

Response— The AFC states that the power plant site is covered in 12 inches of sandy gravel. This information was based on a geotechnical report that included the entire Kifer Receiving Station and is in error for the Pico project site, though it does apply to the Kifer Receiving Station. Soil characteristics of the Sunnyvale Clay are listed in Table 8.11-2.

7. Quantification of soil loss (12-month process [Appendix B(g)(15)(C)(i)]):

The quantification of accelerated soil loss due to wind and water erosion.

Information required to make AFC conform with regulations:

Please provide the quantification of accelerated soil loss due to wind and water erosion (current, immediately upon completion of construction, and five years after completion). Please provide a description of the areas where the soils from the site and linears will be deposited if it enters the drainage ditches, pipes, and canals.

Response—A quantification of soil loss for pre-development and post-development conditions is provided in Table 8.11-S3 and Figures 8.11-S1 and 8.11-S2 (below). The Modified Uniform Soil Loss Equation (MUSLE) was used to calculate the estimated amount of erosion produced annually. To better calculate the soil loss for existing conditions, the site was divided into three separate drainage areas (drainage areas A, B, and C) as depicted in the figures. The drainage areas were separated based on the type of ground cover, which defines the vegetation constant (VM) used. For pre-development or current conditions, the total soil

loss was estimated to be 3.9 tons per year. For post-development conditions, total soil loss would be 0.04 t/yr.

Following construction, wind and water erosion on the plant site will be negligible, because the plant site will be leveled, compacted, covered with concrete and/or aggregate, and drainage will be controlled through a storm water conveyance system. For this reason, we have not provided quantitative information for completion of construction and five years after construction.

Significant soil loss during and following construction activities is not anticipated due to the implementation of various best management practices (BMPs). However, if soil loss does occur, it will be conveyed through the City of Santa Clara's sewer system and ultimately deposited at the Gualalupe River. Prior to construction and, in accordance with NPDES permit requirements, a SWPPP will be prepared where the most appropriate BMPs are identified to minimize soil loss from the site.

8. LORS compliance (12-month process [Appendix B(h)(1)(A)]):

Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, and permits applicable to the proposed project, and a discussion of the applicability of each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed.

Information required to make AFC conform with regulations:

Please provide tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans and permits. Please include local requirements.

Response—See response to Item #1, above.

9. Agency jurisdiction (12-month process [Appendix B(h)(1)(B)]):

Tables which identify each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.

Information required to make AFC conform with regulations:

Please provide tables which identify each agency with jurisdiction to issue applicable permits or approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state, and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive jurisdiction of the commission to certify sites and related facilities.

Response—See response to Item #1, above.

10. Agency contacts (12-month process [Appendix B(h)(3)]):

The name, title, phone number, and address, if known, of an official within each agency who will serve as a contact person for the agency.

Information required to make AFC conform with regulations:

Please provide tables which identify each agency with jurisdiction to issue applicable permits or approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state, and

federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive jurisdiction of the commission to certify sites and related facilities.

Response—See response to Item #1, above.

Table 8.11-S3. Soil loss calculation for the PPP site, by subarea.

Sub-drainage Area ID*	Area (acres)	Soil Type	K	L (feet)	Fall (feet)	S (%)	m	LS	R	VM	Rate of Soil Loss (A) (t/acre/yr)	Soil Loss for the Sub Drainage Area (t/yr)
Pre-development Conditions:												
A (Dirt Cover)	2.62	Clay	0.29	48.8	1.2	2.46	0.4	0.18	33	0.65	1.14	3.0
B (Dirt Cover and Dense Vegetation)	0.6	Clay	0.29	41.7	0.9	2.16	0.37	0.16	33	0.35	0.52	0.3
C (Dirt Cover and Poor Grass)	1.0	Clay	0.29	38.3	0.7	1.83	0.35	0.14	33	0.45	0.58	0.6
Total soil loss - Pre development Conditions (t/year) =												3.9
Post-development Conditions												
A (Power Plant Area)	2.62	Gravel, Paving, Equip., Bldg	0.05	100	1	1.00	0.2	0.12	33	0.05	0.01	0.03
B (Parking and Easement Area)	0.6	Paved	0.05	100	1	1.00	0.2	0.12	33	0.01	0.002	0.001
C (Warehouse and Shop, and Equipment Storage)	1.0	Gravel, Paving, Equip., Bldg	0.05	100	1	1.00	0.2	0.12	33	0.05	0.01	0.010
Total soil loss - Post development Conditions (t/year) =												0.04

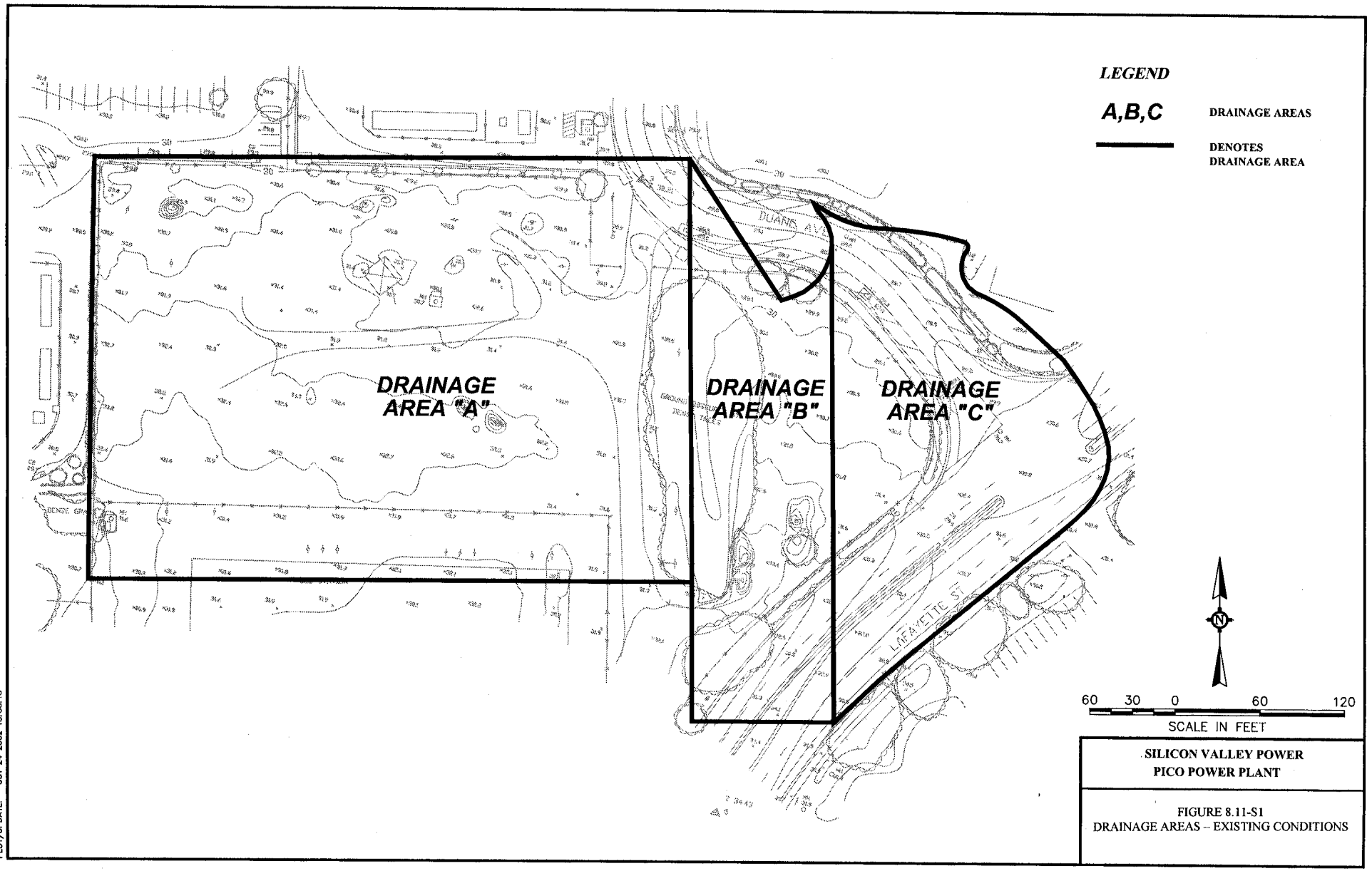
Soil loss is estimated using the Modified Universal Soil Loss Equation: A=(R)(K)(LS)(VM)

where:

A = average annual soil loss (tons/acre)
R = rainfall and runoff erosivity index (dimensionless)
K = soil erodibility factor, (tons/acre)
LS = slope length and steepness factor (dimensionless)
VM = vegetation constant (dimensionless) similar to (C) (P) in the Universal Soil Loss Equation
C = cover and management factor
P =support practice factor

* see Figures 1 and 2.

[1]Soil loss equation variables used above represent average values for each drainage area.



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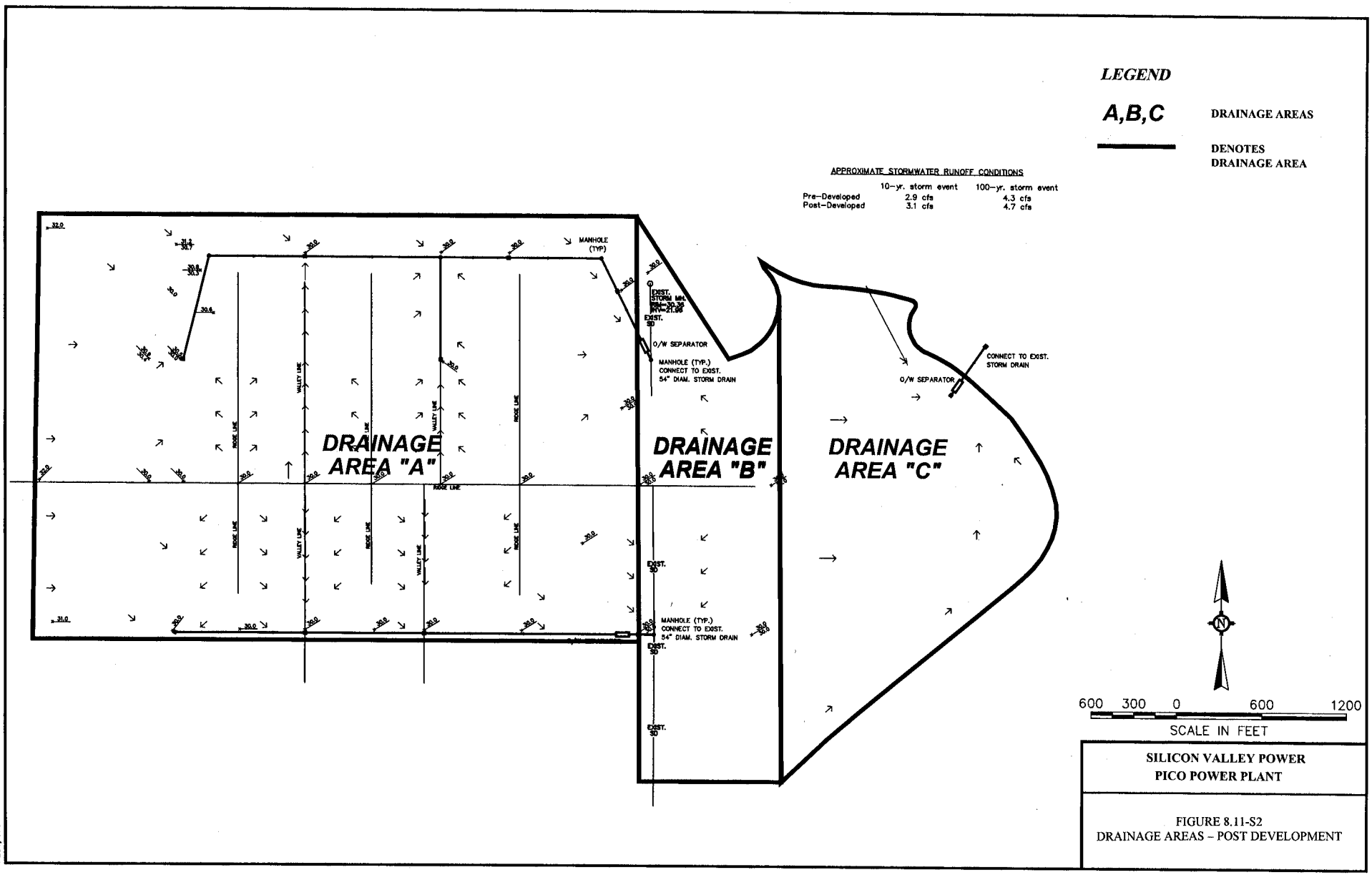

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SILICON VALLEY POWER
PICO POWER PLANT

FIGURE 8.11-S2
DRAINAGE AREAS – POST DEVELOPMENT

8.13 VISUAL RESOURCES

1. Changes to LORS (6-month expedited process [§2022(b)(1)(C)]):

Where a standard, ordinance, or law is expected to change between the time of filing an application and certification, information from the responsible jurisdiction documenting the impending change, the schedule for enactment of the change, and whether the proposed project will comply with the changed standard, ordinance, or law.

Information required to make AFC conform with regulations:

The AFC does not indicate whether the City of Santa Clara General Plan, Zoning Ordinance, or other applicable LORS are expected to change between the time of filing of the AFC and certification. If the LORS are not expected to change, please state as such and provide the source of that information. If they are expected to change, please provide information from the City of Santa Clara Planning Department or other administering agency documenting the impending change, the schedule for enacting the change, and whether the proposed project will comply with the changed standard or ordinance.

Response—The City has no plans to change the General Plan or Zoning Ordinance between the time of filing and certification of the Pico Power Project, based on discussions with City Planners with the City of Santa Clara on Thursday, October 24th (personal communication with Jeffrey Schwilk, Associate Planner and Lorenzo J. Lopez, Civil Engineer I). Therefore, the project now complies with all LORs and those LORs will not be changed in the next 6 months. If the City's LORS change, the Pico Power Project will comply with the new LORS.

2. Viewshed map (12-month process [Appendix B(g)(6)(A)(i)]):

Topographic maps at a scale of 1:24:000 of the areas from which the project can be seen, identification of the view areas most sensitive to the potential visual impacts of the project, and the locations where the photographs were taken for (g)(6)(E).

Information required to make AFC conform with regulations:

The figures provided are not at a scale of 1:24,000. In addition, the maps do not graphically depict the areas from which the project would be seen. Please provide a map or maps at a scale of 1:24,000 depicting the areas from which the project would be seen (i.e., the potential project viewshed) and the locations where the photographs (character shots and KOPs) were taken. For example, see the Russell City Energy Center AFC, Figures 8.13-1a and 8.13-1b.

Response—The figures showing the locations and directions of KOPs and visual character photographs are at a scale of 1:12,000 instead of 1:24,000 because this larger scale allows us to show more precisely where the photographs and KOPs are located. After discussions with Eric Knight of the CEC Staff, it was agreed that this would be an appropriate scale for these figures. Attached is a viewshed map, also at a scale of 1:12,000, showing the areas from which the project would be seen.

3. Gas Metering Station and Brokaw Laydown Area (12-month process [Appendix B(g)(6)(C)]):

After discussions with staff and community residents who live in close proximity to the proposed project, identify the scenic corridors and any visually sensitive areas potentially affected by the proposed project, including recreational and residential areas. Indicate the approximate number of people using each of these sensitive areas and the estimated number of residences with views of the project. For purposes of this section, a scenic corridor is that area of land with scenic natural beauty, adjacent to and visible from a linear feature, such as a road, or river.

Information required to make AFC conform with regulations:

Please estimate the number of residences in the high-density residential area adjacent to the proposed gas metering facility site that would have views of this facility. Please also estimate the number of bicyclists and pedestrians using the bike path (which according to the AFC would be realigned) that currently crosses the proposed gas metering facility site.

Please estimate the number of residences that would have views of the proposed construction storage area at the Brokaw Substation.

Response:

Gas Metering Station—The gas metering station for the new gas pipeline will be located within an easement, near a 10-foot-wide pathway just north of the northeast corner of Gianera Street and Wilcox Avenue. The approximately 200-foot-long pathway is a pedestrian circulation corridor between the Esperonica Residential Development to the south, and the Santa Clara Amtrak/Antioch Commuter Express (ACE) Station parking lot to the north. The parking lot is used by commuters who park and take the transit system. There are four, two-story, single family dwellings just south of the easement. Residents within the homes will be able to view the path and gas metering station from windows above the station. In addition, there are three, two-story single family homes immediately south of the path and easement. Residents within these houses will be able to see the metering station but from a lower-angled viewing point. The gas metering station will be low in profile and screened on all sides by a concrete wall or security fence with landscaping. Most of the residents to the south will, therefore, not be able to see the station. From the east, the metering station will be screened from view by a 7-foot-high concrete wall and from Lafayette Street by existing street trees.

City Planners and Engineers have no records on the number of bicyclists or pedestrians using this path, and the easement and pathway may be maintained by the Esperonica Homeowner's Association or the City of Santa Clara. Neither the City of Santa Clara, the local transportion agency, or the Esperonica Homeowner's Association conducts surveys on the number of bicyclists or pedestrians using the path adjacent to the gas metering station. On Thursday, October 24th, from 12:00pm to 1:30pm no bicyclists or pedestrians used the route. It is not likely that this is a heavily used route, since it leads from a relatively well-enclosed residential area to the railway parking lot. The route is short and has no scenic attributes that would attract recreational users. It is most useful for pedestrians traveling from the immediately surrounding residential area or to the train station for commuting. As there are no other bicycle paths connecting to the north or south of this path and this path connects a streetway with a parking lot to the north, it is likely that this route is not often used by bicyclists. Since the gas metering station will be screened from view, and low in profile, it will visually blend in with the existing screening

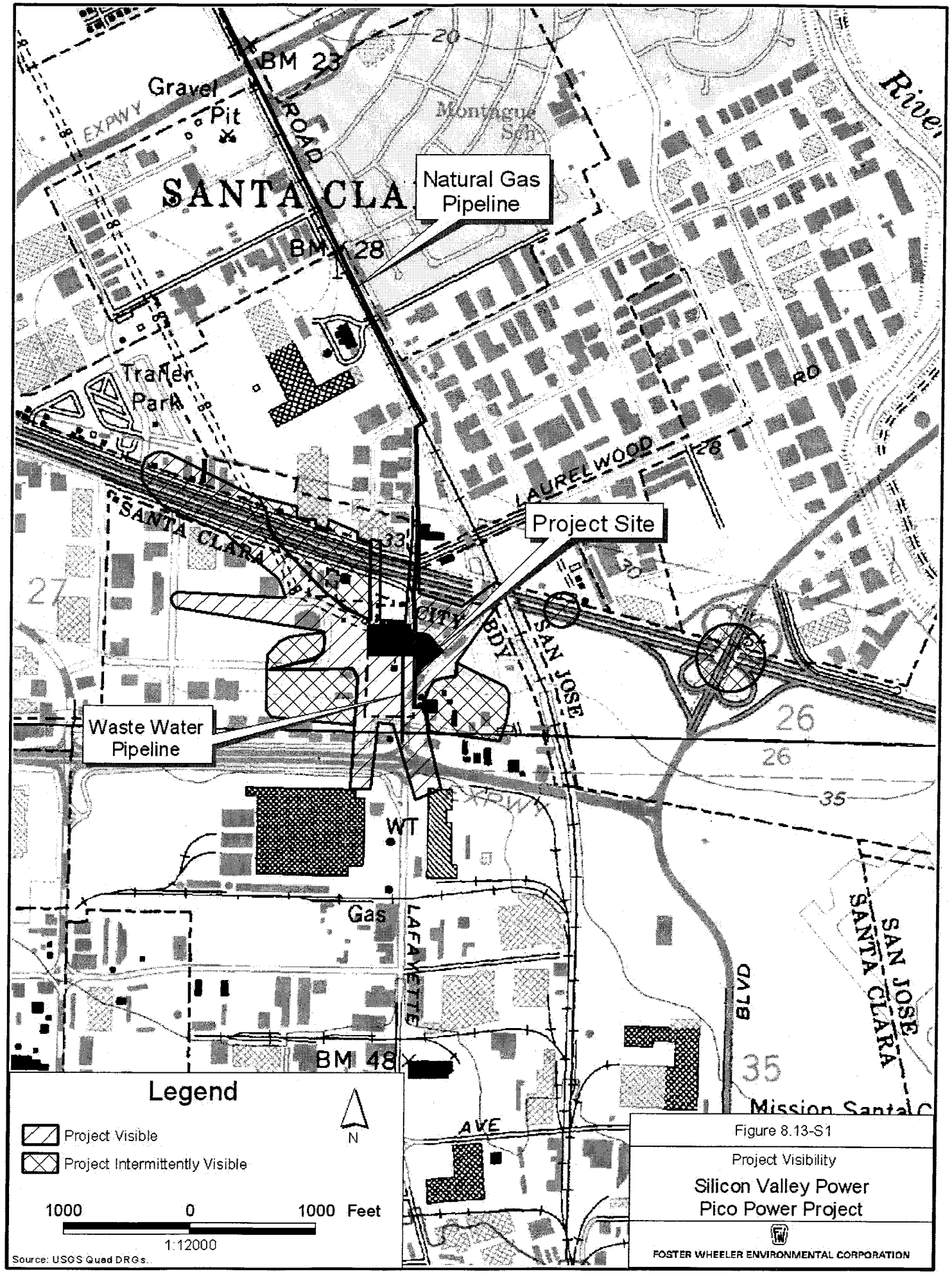


Figure 8.13-S1

Project Visibility

Silicon Valley Power
Pico Power Project

FOSTER WHEELER ENVIRONMENTAL CORPORATION

walls and townhome walls of the surrounding area, and will not have a significant adverse impact on the visual quality of the area.

Brokaw Substation Laydown Area— As discussed in AFC section 8.13.2.3 of the Visual Resources Section under Construction Laydown Areas, the Brokaw laydown area is screened from view from all areas around the site except from the west, on the opposite side of the Union Pacific Railroad tracks from the laydown area. In this direction, separated from the laydown area by four sets of railroad tracks, there is an apartment complex with four, two-story, townhouses. Residents within these buildings will be able to see the laydown area from both upper and lower story windows. Existing fencing along the west side of the laydown area will partially screen equipment within the laydown area from view. It is estimated that up to 30 residents reside within the apartments facing the railroad tracks. Only residents within the apartment buildings and drivers driving over the De La Cruz railroad overpass will see the site. Drivers will only have a brief glimpse of the laydown area from the overpass and, based on the industrial character of the area, drivers will not be sensitive to the visual impact of the laydown area. The visual impact of the substation laydown area will be minor and temporary and will not cause a significant adverse effect to visual resources.

4. Gas Metering Facility Height (12-month process [Appendix B(g)(6)(D)]):

A description of the dimensions, color, and material of each major visible component of the project.

Information required to make AFC conform with regulations:

Please provide the height of the proposed gas metering facility.

Response—The gas metering facility will be four feet high. It will be surrounded by a six-foot-high enclosure.

5. Visual impacts (12-month process [Appendix B(g)(6)(F)]):

An assessment of the visual impacts of the project, including light and glare, and visible plumes.

Information required to make AFC conform with regulations:

The AFC states on pages 8.13-15 and 8.13-19 that the cooling tower and HRSGs would be designed to prevent the formation of visible plumes under all but the most extreme meteorological conditions. However, the AFC does not explain what the design points are for the cooling tower and HRSGs. Furthermore, the AFC does not discuss how often plumes would form at the PPP when the conditions are more severe than the design points and whether the resulting visual impact of these plumes would be significant. Please provide the design points for the plume-abated cooling tower and HRSGs and a discussion of the visual impacts of the plumes.

According to the AFC, a gas metering facility would be located in an open area between Gianera Street and the Hetch Hetchy Aqueduct right-of-way. The gas metering facility site is currently a pedestrian and bicycle path and is located adjacent to a high-density residential area. The AFC identifies two mitigation options (6-foot-high perimeter walls or security landscaping) but does not discuss the anticipated visual impacts to residential and recreational viewers in this area, and whether the identified mitigation measures would mitigate any significant visual impacts. Please discuss the visual impacts of the gas metering facility on the residential and recreational viewers in the area.

A gas compressor building would be located at the corner of Comstock and Lafayette Streets. Please discuss the visual impacts of the facility.

Response:

Cooling Tower and HRSG Plumes—The cooling tower abatement system is designed to remove the visible portion of the plume during conditions when the temperature is equal to or above 35 degrees Fahrenheit and greater than or equal to 85 percent relative humidity. Using temperature data summaries for Moffett Field, approximately 25 hours per year would have temperatures less than 35 degrees Fahrenheit. In other words, conditions favorable for visible plume formation exist only 0.29 percent of the year. As the SACTI model results indicate, visible plume formation will mostly be confined to the project site location.

The statement on page AFC page 8.13-15 that refers to the formation of water vapor plumes from the turbine/HRSG exhaust stacks ("Water vapor plumes from the exhaust stacks will not be visible with the design being used for the heat recovery steam generators except under very limited conditions.") was not meant to indicate or imply that the HRSGs will employ special mechanical or operation design features for plume abatement. Plumes would form over the HRSG stacks only rarely with standard equipment under normal operating procedures. The turbine/HRSG stacks were modeled with SACTI in order to identify the total hours that visible plume formation would occur. The results indicate that a visible plume could form approximately 35 hours per year (0.4 percent of the time). The plume dimensions will be approximately 20 feet in height and 20 feet in diameter.

In conclusion, visible plumes would form over the cooling towers and HRSG stacks so infrequently that they would not cause a significant adverse impact to visual resources. In addition, much of the plume formation would take place at night and during bad weather when visibility is poor.

Gas Compressor Building—The natural gas compressors will be located in an existing fenced-off area, south of the City's maintenance yard facility on the northeast corner of Comstock Street and Lafayette Street. The site is already screened from view by a 6ft. high chain link fence with wood slats. The compressors may be further screened from view by a concrete sound attenuation wall.

Since the compressors will be located in an area that is already dedicated to industrial activities and will be screened from view, it will not change the visual quality of the area or be visible to viewers on Comstock Street or Lafayette Street. Therefore, this feature will not cause a significant adverse impact.

8.15 WATER RESOURCES

1. LORS Compliance (6 month expedited process [§2022(b)(1)(B)]):

Information demonstrating that the project as proposed in the application will comply with all such standards, ordinances, and laws;

Information required to make AFC conform with regulations:

Please provide substantial evidence that the project as proposed in the application will comply with all standards, ordinances, and laws applicable at the time of certification.

Response—Several tables in the AFC describe the LORS applicable to water resources. We have consolidated some of this information and added additional information in Table 8.15-S1 (next page). Taken together with the AFC's description of the project and its water resources and water quality mitigation measures (see also Section 8.11 in this document on Soils and Agriculture) and the text below that describes each applicable LORS in detail, there is substantial evidence that the project will comply with all LORS applicable at the time of certification.

Federal LORS

The Clean Water Act (CWA) regulates discharges of wastewater and storm water in order to protect the nation's waters. The CWA authorizes the United States (US) Environmental Protection Agency (EPA) to regulate discharges of wastewater and storm water into surface waters using the National Pollution Discharge Elimination System (NPDES) permits and pretreatment standards. These permits are implemented at the regional level by the San Francisco Regional Water Quality Control Board (SFRWQCB).

The Pico Power Plant (PPP) will be required to obtain an NPDES General Industrial Storm Water Permit under the State Water Quality Control Board Order No.91-B-DWQ (as amended by the Water Quality Order No. 02-01-DWQ), General Permit No. CAS000001 (General Permit).

The PPP will also be required to meet 40 CFR 423.17 that addresses the steam electric power generating point source category. 40 CFR Section 423.17 outlines pretreatment standards that are applicable to the PPP and lists the maximum allowable concentration permitted to be discharged in cooling tower blowdown from new sources.

Each of these Federal LORS is discussed in detail below.

NPDES General Industrial Storm Water Permit—The SFRWQCB NPDES permit for industrial storm water discharges meets all applicable provisions of Section 301 and 401 of the Clean Water Act (CWA). These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT).
The General Industrial Storm Water permit has three main components: 1) Preparation of a Storm Water Pollution Prevention Plan (SWPPP), 2) the Development of a Monitoring Program and 3) Permit Compliance Responsibility.

Table 8.15-S1. Applicable laws, ordinances, regulations, and standards.

LORS	Applicability	PPP Project Conformance
Federal:		
Clean water Act (CWA) Sections 307, 318, 402 (p), and 405	Regulates discharges of wastewater and storm water in order to protect nation's waters.	Storm water discharges are subject to the NPDES General Industrial Storm Water discharge permit. This permit is obtained from the SFRWQCB. Under this permit, PPP will prepare a Storm Water Pollution Prevention Plan (SWPPP), a monitoring program and permit compliance responsibility is required. Tables 8.15-9a and 8.15-9b outline monitoring and analyses that will be completed as a part of the permit.
Title 40 of the U.S. Code of Federal Regulations, part 423.17	Pretreatment standards for cooling tower blowdown for new sources.	Cooling tower blowdown water will be discharged in accordance with these standards. Conformity with these standards means that cooling tower treatment will not contain any of the 126 priority pollutants listed in 40 CFR 423.17. Additionally, maximum daily values of 0.2 mg/L for chromium and 1.0 mg/L for zinc will not be exceeded in cooling tower blowdown water.
California:		
State Water Resources Control Board	Regulates industrial storm water discharges during construction of the facility.	The EPA Storm Water Phase II Final Rule will require construction sites between 1 and 5 acres to comply with Phase II Final Rule by March 10, 2003. The PPP will comply with Phase II Final Rule. During construction, the following specific measures will be implemented to prevent storm water pollution and to minimize potential sediment run-off during construction: Use silt fencing to retain sediment on the project site. Provide temporary cover of disturbed surfaces to help control erosion during construction Provides permanent cover to stabilize disturbed surfaces after construction has been completed.
California Water Code Section 461 & SWRCB Resolution 77-1	Encourages water conservation and use of recycled water	Effective practices for water use and conservation were engineered into the facility. SBWR water will be used as the primary water supply for the PPP.

Table 8.15-S1. Applicable laws, ordinances, regulations, and standards.

LORS	Applicability	PPP Project Conformance
Title 22 of the California Code of Regulations	Provides requirements for the use of recycled water in cooling towers	The PPP will conform to regulations. Specifically, a Title 22 Engineer's Report will be prepared. The report will contain a description of the design of the proposed reclaimed water use system. The Title 22 report will also contain a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to inappropriate areas.
Santa Clara Valley Water District (SCVWD)	Under Ordinance 90-1, A well permit is required for construction of any well or excavation greater than 45 feet deep.	The City of Santa Clara will apply to the SCVWD for a well permit a minimum of 10 business days prior to well construction. A well permit application will also be completed. The well permit application will specify the location, depth, and construction information for the water supply well. An on-site inspection may be performed by SCVWD.
Local:		
City of Santa Clara City Code, Rules and Regulations, 1996.	Regulates discharges to the City of Santa Clara/San Jose sanitary sewer system and the Water Pollution Control Plant (WPCP).	The PPP will be a Group 2 Discharger and will conform to nickel and copper discharge limits under this classification. The WPCP has also set daily maximum allowable concentrations for all industrial users. (Table 23.6, *City of Santa Clara, City Code, Rules and Regulations, Sewers and Sewage Disposal, September 1996*). The PPP will meet these daily maximum allowable concentrations in its cooling tower/plant drainage effluent. See Table 8.15-8 for a comparison of maximum allowable concentrations and the PPP combined effluent water quality for cooling tower blowdown and plant drainage.
Various	Address issues such as drainage, erosion control, hazardous material spill control, facility siting in flood zones, storm water discharge, and discharge of wastewater to the municipal sewer system.	Project will comply with the General Plan of City of Santa Clara and 2002 Water Master Plan.

Initially, the PPP will submit a Notice of Intent (NOI) for coverage under this General Permit and will develop a SWPPP in accordance with Section A of the permit. The PPP, as a new discharger, will be required to file a NOI at least 14 days prior to beginning operations. A Waste Discharger Identification Number (WDID) will be issued within 10 business days after the SFRWQCB receives the completed NOI package (which will include the original signed NOI, vicinity map and fee).

Once the NOI is received, the SWPPP will be implemented. Table 8.15-S2 summarizes specific NPDES Industrial Storm Water Permit monitoring requirements and Table 8.15-S3 presents storm water analyses (and EPA protocols) that will be included in the SWPPP and followed for the PPP. The monitoring activities and testing methods required under these permits will ensure that the mitigation measures will be effective and that the project will not cause any significant adverse impacts to the surface water quality in the project area.

Table 8.15-S2. Summary of monitoring activities required by the General NPDES Industrial Storm Water Permit.

Activity	Description	Permit Section	Location	Frequency	R estrictions
Quarterly Inspections	Visually inspect all areas of industrial activity and associated potential pollutant sources. Inspect all authorized non-storm water discharges and look for the presence of unauthorized non-storm water discharges.	A.8.B.IX	All areas of industrial activity and all drainage areas	Once per quarter	With in 16 weeks, during daylight hors, days without precipitation, and during scheduled facility operating hours.
Annual Comprehensive Site Compliance Evaluation (ACSCE)	Review all records, visually inspect all potential pollutant sources, review and evaluate all BMPs and revise as necessary, visually inspect equipment needed to implement SWPPP, prepare evaluation report.	A.9	NA	Annually	Within 8-16 months of prior ACSCE
Monthly Storm Water Visual Observations	Visually observe storm water discharge quality. Record and maintain observations, dates, locations, and responses.	B.4	All storm water discharge locations	Once per month (October-May)	During 1st hour of discharge, daylight hours, facility operating hours, and preceded by 3 working days without discharge
Documentation of Non-Discharging Storm Events	Document storm events that do not produce a discharge but that occur before a monthly visual observation.	B.4.e	NA	Daily (October-May)	Only document events during each month prior to performing Monthly Storm Water Visual Observations
Drainage Area Inspections	Inspect all storm water drainage areas for spills and leaks.	B.3	All storm water drainage areas	Prior to anticipated storm events	
Storm Water Sample Collection	Collect samples of storm water discharges and submit for laboratory analyses.	B.5	All storm water discharge locations	Twice Annually (October-May)	First and second storms of wet season, during 1st hour of discharge and scheduled facility operating hours preceded by 3 working days without discharge
Storm Water Storage and Containment Area Inspections	Visually inspect storm water storage and containment areas.	B.4.D	Storm water storage and containment areas	Monthly	

Source: State Water Resources Control Board. Division of water quality. http://www.swrcb.ca.gov

Table 8.15-S3. Recommended methods, General Industrial NPDES Storm Water Permit.

Parameter	Test Method	Detection Limit	Reporting Units
pH*	Field Test with Calibrated Paper and/or EPA 9040	1-14	
Total Suspended Solids (TSS)*	EPA 160.2 SM2540-D	1.0	mg/L
Specific Conductance (S/C)*	EPA 120.1 SM 2510-B	1.0	uohms/cm
Total Oil & Grease (TOG)*	EPA 413.2 EPA 1664	1.0	mg/L
Total Organic Carbon(TOC)*	SM 5310C	0.01	mg/L
Iron**	EPA200.7	0.05	mg/L
* Required analyses ** Additional analysis required for Steam Electric Power Generating Facilities			

In accordance with reporting requirements of the General Permit, the PPP will conduct one comprehensive site evaluation in each reporting period (July 1 through June 30). Evaluations will include 1) a review of all visual observation records, inspection records and sampling and analysis results, 2) a visual inspection of all areas of industrial activity associated with potential pollutant sources, and 3) a review and evaluation of all best management practices (BMPs) for each area of industrial activity.

40 CFR 423.17 Pretreatment Standards for New Sources—To address indirect discharges from industries to Publicly Owned Treatment Works (POTWs), the EPA through its CWA authority established the National Pretreatment Program as a component of the NPDES Permitting Program. The National Pretreatment Program requires industrial and commercial dischargers to treat or control pollutants in their wastewater prior to discharge to the POTW.

The federal pretreatment standards for cooling tower blowdown from new sources (40CFR 423.17) are listed in Table 8.15-S4. Conformity with these standards means that cooling tower treatment will not exceed the maximum daily values of 0.2 mg/L for chromium and 1.0 mg/L for zinc in cooling tower blowdown water discharged to the sanitary sewer.

The federal pretreatment standards also require that cooling tower blowdown from new sources not contain any of the 126 priority pollutants (metals and organic compounds) listed in 40 CFR 423.17. Compliance with these federal standards is assured by starting with a clean water supply, constructing cooling towers with wetted surfaces that do leach priority pollutants, purchasing water treatment chemicals that do not contain priority pollutants, and carefully controlling dosages to the minimum required to achieve the desired.

As a part of the Pretreatment Program, the PPP will self-monitor in order to complete periodic compliance reports, as will be specified in the discharge permit requirements. At least 90 days prior to the commencement of discharge from the PPP, a Baseline Monitoring Report (BMR) will be completed to provide baseline information on the PPP, to determine wastewater discharge sampling points, and to assure compliance with the pretreatment standards.

A 90-day Compliance Report will be prepared and submitted within 90 days following the commencement of wastewater discharge to the Water Pollution Control Plant (WPCP).

Table 8.15-S4. Wastewater discharge streams and applicable discharge standards

Constituent	Units	Cooling Tower Blowdown[1] and Plant Drainage Water Quality	South Bay Recycled Water (2001 Water Quality Data)	Daily Maximum Allowable Concentration[2,3,4]
Arsenic	mg/L	0.00585	.001	1.0[2]
Boron	mg/L	2.625	0.525	
Cadmium	mg/L	0.0025	<0.0005	0.7[2]
Chloride	mg/L	1,040	208	
Chromium	mg/L	0.005	<0.001	1.0[2], 0.2[4]
Copper	mg/L	0.015	0.035	2.7[2], (0.05 – 1.0)[3]
Hardness-calcium	mg/L	241.5	245	
Lead	mg/L	0.005	0.001	0.4[2]
Mercury	mg/L	0.000013	0.0000026	0.01[2]
Nickel	mg/L	0.035	0.007	2.6[2], (0.005 – 1.1)[3]
Nitrate as NO_3	mg/L	45	40	
Phosphate	mg/L	23	4.68	
Potassium	mg/L	74.5	15	
Silver	mg/L	0.005	<0.001	0.7[2]
Sodium	mg/L	805	161	
Sulfate	mg/L	470	109	
Total dissolved solids	mg/L	3,745	749	
Total suspended solids	mg/L	10	2.0	
Temperature	Degrees F	73	69.1	
Zinc	mg/L	0.260	0.0519	2.6[2], 1.0[4]

[1]Estimated 5-Cycle Cooling Tower Blowdown Water Quality Data based upon incoming water quality data provided by the SBWR and preliminary plant water balance diagram.

[2]Daily Maximum Allowable Concentrations for industrial wastewater discharge to the San Jose/Santa Clara WPCP (Table 23.6, City of Santa Clara, 1996).

[3]Group 2 Discharger Limits for Industrial Wastewater Discharge Permit shown in parentheses (City of Santa Clara, 1996).

[4]40 CFR 423.17 cooling tower blowdown pretreatment standards for new sources. Concentration limits shown are maximum daily values. Chemicals used in cooling tower treatment will not contain priority pollutants listed in 40 CFR 423.17.

California State LORS

Storm Water Phase II Final Rule—Currently, the State Water Resources Control Board is working to develop a compliance program to meet the EPA Storm Water Phase II Final Rule. Under the Phase II Final Rule, operators of Phase II small construction sites (greater than or equal to 1 acre) will be required to obtain an NPDES permit and to implement practices to minimize pollutant runoff. Operators of small construction activity will be required to submit a NOI, a Storm Water Management Program (SWMP) and a fee.

In accordance with the Phase II Final Rule, the PPP must implement BMPs that reduce pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP). In accordance with 40 CFR, 122.44 (k)(2), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits.

In addition to meeting requirements to file an NOI, the following specific measures will be included in the SWMP to prevent storm water pollution and to minimize potential sediment run-off during construction:

- Develop a pre-construction site plan and BMP review that will incorporate potential water quality impacts from construction activities.
- Use of silt fencing to retain sediment on the project site.
- Provide temporary cover of disturbed surfaces to help control erosion during construction.
- Provide permanent cover to stabilize disturbed surfaces after construction has been completed.
- Develop and implement a waste management program to control all pollutant sources at the construction site that may cause adverse impacts to water quality (including construction materials and waste, discarded building materials, chemicals, fuel, litter and sanitary waste).
- Ensure site inspections and pollution control measures are enacted throughout the construction period.

California Water Code, Section 461 & SWRCB Resolution 77-1—Resolution 77-1 outlines the State of California's policy with respect to water conservation and reclamation. The resolution encourages water conservation and the use of recycled water. The PPP will comply with this resolution by using recycled water as delivered by south bay water recycling for its primary water supply. Average and peak water supply requirements of 0.94 and 1.8 million gallons per day (mgd) will be met using the reclaimed water supply.

Title 22 Code of Regulations, Sections 60313 to 60316—the Department of Health Services (DHS) established water quality standards and treatment criteria for water recycling under Title 22, chapter 4 of the California Code of Regulations (CCR). Title 22 also specifies the reliability and redundancy for each recycled water treatment and use operation. For recycled wastewater piping, DHS has requirements for preventing backflow of recycled water into the potable water supply system and for avoiding cross-connection between recycled and potable water supply systems.

In accordance with Title 22 requirements, the PPP will provide an approved back flow preventer on the section of the potable water line that would provide backup water to the reclaimed water system. The PPP will also provide equipment labels, signs and notice for those pipelines carrying recycled water.

The PPP will prepare an Engineer's report in accordance with Title 22, Section 60323 that will include the following information:

- A detailed description of the intended use of the reclaimed water
- Plans and specifications of the reclaimed water system
- Methods to be used by the SBWR to assure that the installation and operation of the dual plumbed system will not result in cross-connections between the recycled water piping system and the potable water piping system. All recycled wastewater lines and valve boxes will be clearly identified to distinguish between recycled wastewater and potable water system.

The PPP will also designate an on-site water supervisor who will have responsibility for the protection of the potable water system. The water supervisor will be responsible for the installation, operation and maintenance of the recycled wastewater and potable water systems, prevention of potential hazards, and the implementation of Title 22 guidelines with the DHS. Authorization of PPP piping changes or additions to the potable or recycled wastewater systems will be subject to review and approval by the PPP water supervisor.

Santa Clara Valley Water District Well Construction Application—Under Ordinance 90-1, a well permit is required for the construction of any well or excavation greater than 45 feet. The City of Santa Clara will complete a well construction permit a minimum of 10 business days prior to their water supply well construction. The well permit application will specify the location, depth, and construction information for the water supply well. Standards for the construction of the water supply well will be in accordance with the latest revisions of both the SCVWD Well Standards and the Department of Water Resources Bulletin 74-81.

The SCVWD will inspect the annual seal placement upon construction of the water supply well. The SCVWD requires that they be notified a minimum of twenty-four (24) hours prior to sealing the annular space during well construction. The SCVWD may also make an initial inspection of the proposed well site and perform an inspection at the completion of the water supply well construction.

Within 30 days of the completed water supply well, a copy of the "Report of Completion" (Water Well Driller's Report, Department of Water Resources Form 188) will be submitted to the SCVWD by the City of Santa Clara, as required by the California Water Code Section 13751.

Local LORS

City of Santa Clara City Code, rules and regulations, 1986—the City of Santa Clara Municipal Code regulates discharges to the City of Santa Clara sanitary sewer system and the San Jose/Santa Clara WPCP.

The City of Santa Clara will require the PPP to obtain an Industrial Wastewater Discharge Permit for discharge to the sanitary sewer system and the WPCP. The PPP will be a Group 2 Discharger. Group 2 Dischargers are those industries that discharge wastewater containing copper and nickel, but that do not use copper or nickel as a part of their operational process. Group 2 discharge limits as compared to projected PPP Cooling Tower Blowdown water quality are shown on Table 8.15-S4 (above).

The WPCP has also set maximum allowable industrial discharge concentrations for all industrial users. These standards are also shown on Table 8.15-S4. Maximum allowable discharge concentrations in

Table 8.15-S4 are also compared with both SBWR recycled water quality and PPP cooling tower blowdown and plant drainage effluent water quality.

In addition to effluent discharge limits, the Industrial Wastewater Discharge Permit issued by the City of Santa Clara will also include a statement of duration, statement of nontransferability, self-monitoring requirements, a statement of applicable civil and criminal penalties, notification of spills, notification of significant change in discharge, notification of violation/resample requirement and a slug discharge control plan requirement.

Various—Other local ordinances address water-related issues such as drainage, erosion control and storm water discharge. An ordinance for land grading has been established by the County of Santa Clara (Ordinance 1203.109, Chapter III of Division C12, Sections C12-440 through C12-599). This ordinance establishes minimum requirements for all grading work completed within the county.

The PPP will also comply with the County of Santa Clara's Nonpoint Source Pollution Control Program. This program complies with the SFRQWCB NPDES storm water requirements and specifies discharge prohibitions for materials that cannot be discharged to any part of the of the storm sewer (e.g., raw sewage, petroleum or petroleum products, chlorinated organics, soil sediments etc.). The County's Nonpoint Source Pollution Control Program also stipulates civil fines and penalties associated with violations.

The City of Santa Clara has two ordinances directly applicable to the PPP: the Property Development Ordinance and the Building Ordinance. The Property Ordinance defines the City's policies, requirements and procedures for development of the property in the City, citing the City's requirements for on-site sanitary sewer and storm drains, fees and connection requirements. The Building Ordinance specifies construction in compliance with the most recent Uniform Building Code requirements.

2. Changes to LORS (6-month expedited process [§2022(b)(1)(C)]):

Where a standard, ordinance, or law is expected to change between the time of filing an application and certification, information from the responsible jurisdiction documenting the impending change, the schedule for enactment of the change, and whether the proposed project will comply with the changed standard, ordinance, or law.

Information required to make AFC conform with regulations:

Please provide a statement addressing this section.

Response—We are unaware of any proposed or potential changes in the applicable LORS for the next six months. If such changes are promulgated, the Pico Power Project will comply with them.

3. General NPDES permit compliance letter (6-month expedited process [§2022(b)(1)(D)]):

A list of the requirements for permitting by each federal, state, regional, and local agency that has jurisdiction over the proposed project or that would have jurisdiction, but for the exclusive jurisdiction of the commission, and the information necessary to meet those requirements.

Information required to make AFC conform with regulations:

Please provide a letter from the RWQCB stating the project's compliance with the general NPDES permit.

Response—Please note that the data adequacy requirement is for a list of the requirements for permitting, not the permits themselves or agency letters stating that they will permit the project. For the general NPDES permit, the Regional Water Quality Control Board does not review a permit application and issue a permit. The project pays the permit fee and prepares a Storm Water Pollution Prevention Plan (SWPPP) and keeps the plan on site. The Regional Board then may inspect the site and the SWPPP and determine whether or not the project is in compliance. The Regional Board, however, will prepare a letter of compliance if provided the project plan and SWPPP with a request for a such a letter. In our discussions with the Regional Board, they have indicated that obtaining and processing such a letter would take 30 days or more. We will request the letter of the Regional Board and docket the letter during the Discovery Phase of the AFC process.

4. Water quality of the State (6-month expedited process [§2022(b)(2)(E)]):

If the project will result in a discharge of waste that could affect the water quality of the state, a complete report of proposed waste discharge as required by section 13260 of the Water Code. This will allow for issuance of waste discharge requirements by the appropriate regional water quality control board within 100 days after filing the application in accordance with Public Resources Code section 25550(d).

Information required to make AFC conform with regulations:

Please provide the information required for stormwater discharge, pipeline hydrostatic tests, and any other discharges that may affect the water quality of the state.

Response—Project waste water will result in a discharge of waste that could affect the water quality of the state. Process wastewater from the cooling towers will be discharged through the City of Santa Clara's sanitary sewer system to the Santa Clara/San Jose Water Pollution Control Plant (WPCP) under the WPCP's National Pollution Discharge Elimination System (NPDES) permit. Stormwater will be discharged through the City's storm drains in the former Pico Way right-of-way and in Duane Avenue, which discharge to the Guadalupe River.

Hydrostatic test water (see discussion on AFC page 5-4) from City potable water supplies will be chemically analyzed for contaminants and discharged into a dewatering structure consisting of hay bales, geotextile fabric, and silt fencing. The discharged water will filter through the hay bales and silt fence before it is discharged. These measures will be 90 percent or more effective in removing any sediments and other solids that may accumulate in the test water before discharge. The water will be discharged into the City of Santa Clara sanitary sewer system to the WPCP under the appropriate City permit. None of the project discharges will thus affect waters of the state and a report of waste discharge is not required.

5. Effectiveness of mitigation (12-month process [Appendix B(g)(1)]):

...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate

adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation..

Information required to make AFC conform with regulations:

Please provide the effectiveness of the proposed mitigation measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.

Please provide a mitigation plan for the other users of the sewer system if the line needs to be upgraded.

Response—The mitigation measures proposed are measures that are prescribed by storm water and erosion control management programs mandated under the NPDES permitting system. These programs have been in place for a number of years and the prescribed measures have proven effective. Under the General NPDES Permit for Construction, for example, a variety of specific measures are prescribed and a program of monitoring is required. Table 8.15-S2, above (see response to Item #1) lists the monitoring measures required under the General NPDES Construction permit program. Table 8.15-S3 (also response to Item #1) lists the water quality testing methods prescribed for monitoring water quality in association with these programs. The programs are 90 percent effective or better because they have been in place, as mandated by the Clean Water Act, for a number of years and have proven effective. Please see also Table 8.11-S2 (response to Soils item #1 in Section 8.11, this document, above), for an estimate of the effectiveness (in percentage) of selected soil erosion control measures that may be used through the NPDES permitting program and prescribed in the project's Storm Water Pollution Prevention Program to control soil erosion for the PPP.

The 27-inch sanitary sewer line to which the Pico Power Project will discharge wastewater is capable of handing the peak flow proposed. Therefore, an upgrade of the 27-inch line is not required. Should a future upgrade be required due to an increase in flows from other users, a portion of the upstream sewer flow in the 27-inch line would be shunted from the existing gravity-driven system to a pumped portion of the system. This would increase the downstream capacity in the 27-inch line during the time period needed to complete the installation of a parallel sewer line. The cost of the upgrade will be apportioned between all users in accordance with City policy. Please see the 'will serve' letter in Appendix 7-A.

6. Effectiveness of mitigation (12-month process [Appendix B(g)(14)(A)(i)]):

WasteDischarge Requirements.

Information required to make AFC conform with regulations:

Please provide all information required by the Regional Water Quality Control Board regarding waste discharge requirements.

Response—The San Francisco Regional Water Quality Control Board (SFRWQCB) developed waste water quality criteria designed specifically to protect water resources in the south bay area. In the case of copper and nickel, specific permit limits were developed through a special study of WPCP effluent effects (SFRWQCB 1995).

The PPP is a Group 2 Discharger. A Group 2 Discharger is one that does not use copper or nickel as a part of its operational process. Table 8.15-S4 (response to Item #1, above) shows Group 2 Discharger

Daily Maximum Average Concentration Limits for nickel and copper compared with the PPP Cooling Tower Blowdown (5-cycle) and Plant Drainage wastewater quality.

The Regional Water Quality Control Board will not require the PPP to obtain water quality permits other than the General NPDES Permit for Construction and General NPDES Permit for Operation (see item #7, below). The SFRWQCB does require that the San Jose/Santa Clara WPCP maintain an NPDES for the discharge of sanitary wastewater through the WPCP. Since the PPP's waste water will be discharged through the City of Santa Clara sanitary sewer system to the San Jose/Santa Clara WPCP, the PPP will require an Industrial Waste Water Discharge Permit from the WPCP. The PPP will operate within the limits of this discharge permit from the WPCP, thus ensuring that the WPCP will not be in violation of the WPCP's NPDES permit and ensuring that the PPP project will not have a significant adverse effect on local or regional water quality. The response to item #7, below, contains additional information about the requirements of the Industrial Waste Discharge permit and the WPCP's NPDES permit requirements.

*7. **NPDES Permit (12-month process [Appendix B (g)(14)(A)(ii)]):***

A National Pollution Discharge Elimination System Permit.

Information required to make AFC conform with regulations:

Please provide all information required by the Regional Water Quality Control Board in the region where the project will be located to apply for a National Pollution Discharge Elimination System permit. Please provide all the information required by the POTW holding the NPDES permit to accept the project's wastewater. Include all effluent limits and all conditions contained in any required Industrial Wastewater Discharge Permit or similar permit which the project must meet to comply with the POTW's NPDES permit conditions and effluent limits. Include a description of any pretreatment requirements necessary for the project to discharge its wastewater to this facility under the existing NPDES permit.

Response—Federal storm water regulations require a broad range of industrial facilities to be permitted for storm water discharge. The federal storm water regulations are administered through the SFRWQCB.

The PPP will apply to the SFRWQCB for a National Pollutant Discharge Elimination System (NPDES) Permit for General Industrial Storm Water discharge. The project will also apply for a Phase II NPDES Storm Water permit for construction activity. Each of these permit requirements is discussed below.

NPDES General Industrial Storm Water Permit—The SFRWQCB NPDES permit for industrial storm water discharges meets all applicable provisions of Section 301 and 401 of the Clean Water Act (CWA). These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT).

The General Industrial Storm Water permit has three main components: 1) Preparation of a Storm Water Pollution Prevention Plan (SWPPP), 2) the Development of a Monitoring Program, and 3) Permit Compliance Responsibility.

Table 8.15-S2 summarizes specific NPDES Industrial Storm Water Permit monitoring requirements and Table 8.15-S3 presents storm water analyses (and EPA protocols) that will be included in the SWPPP and followed for the PPP. The monitoring activities and testing methods required under these permits

ensure that the mitigation measures will be very effective and that the project will not cause any significant adverse impacts to the water quality of project area waters.

Phase II NPDES Storm Water Construction Permit—Currently, the State Water Resources Control Board is working to develop a compliance program to meet the Phase II Final Rule. Under the Phase II Final Rule, operators of Phase II small construction sites (less than 5 acres) will be required to obtain an NPDES permit and to implement practices to minimize pollutant runoff. For the Phase II small construction program, the EPA has taken a similar approach to Phase I where program requirements are not fully defined in the rule, but rather in the NPDES permit issued by the NPDES permitting authority. The PPP will comply will Phase II Final Rule requirements.

The following specific measures will be implemented to prevent storm water pollution and to minimize potential sediment run-off during construction:

- Use silt fencing to retain sediment on the project site
- Provide temporary cover of disturbed surfaces to help control erosion during construction
- Provides permanent cover to stabilize disturbed surfaces after construction has been completed.

The City of Santa Clara will require the PPP to obtain an Industrial Wastewater Discharge Permit for discharge to the sanitary sewer system and the WPCP. As discussed above, PPP will be a Group 2 Discharger. Group 2 Dischargers are those industries that discharge wastewater containing copper and nickel, but that do not use copper or nickel as a part of their operational process. Group 2 discharge limits are shown on Table 8.15-S4.

The WPCP has also set maximum allowable industrial discharge concentrations for all industrial users. These standards are also shown on Table 8.15-S4. Maximum allowable discharge concentrations in Table 8.15-S4 are also compared with both SBWR recycled water quality and PPP Cooling Tower Blowdown and Plant Drainage effluent water quality.

The federal pretreatment standards for cooling tower blowdown from new sources (40CFR 423.17) are also listed in Table 8.15-S4. Compliance with these federal standards is assured by starting with a clean water supply, cooling tower-wetted surfaces that will not leach priority pollutants, purchasing water treatment chemicals that do not contain priority pollutants, and carefully controlling dosages to the minimum required to achieve the desired result.

8. Chemical characteristics (12-month process [Appendix B (g)(14)(B)(ii)]):

...surface water bodies;

Information required to make AFC conform with regulations:

Please provide the chemical characteristics of the surface water bodies that may be impacted by or receive runoff from the project.

Response—Once PPP site development is complete, final site grading will approximately duplicate pre-development drainage patterns, with a central ridge splitting the center of the power plant site to the north and south, and a series of gentle ridges and valleys further directing storm water toward designed

storm water collection inlets. The proposed drainage lines will connect with the existing fifty-four inch diameter storm drain located in the utility easement in the former Pico Way.

The fifty-four inch-diameter storm drain located in the utility easement of former Pico Way drains northward and this water ultimately discharges from the City's storm drain system to the Guadalupe River (Personal Communication, Gus Gomez, City of Santa Clara, October 24, 2002). The Guadalupe River is located approximately one mile east of the site. Water quality data for the Guadalupe River are collected by the United States Geological Survey (USGS).

The Guadalupe River is one of several water bodies in the Santa Clara Basin that has been designated under Section 303(d) of the Clean Water Act as impaired due to certain pollutants (SFRWQCB 2002). Water bodies in the Guadalupe River watershed (Guadalupe River, Alamitos Creek, Guadalupe Creek, Calero Reservoir and Guadalupe Reservoir) have been listed for mercury. Storm water runoff from the PPP project to the Guadalupe River will not have a significant adverse effect on the water quality of the Guadalupe River or worsen this water body's impairment for mercury.

9. Water demand (12-month process [Appendix B (g)(14)(C)(iii)]):

Average and maximum daily and annual water demand and waste water discharge for both the construction and operation phases of the project.

Information required to make AFC conform with regulations:

Please provide the average and maximum daily and annual waste water for both the construction and operation phases of the project; the average and maximum daily and annual water demand for the construction; and an estimate of the amount of potable water to be used as backup for reclaimed water.

Response—The following is a summary of water demand and discharge for both the construction and operation phases of the PPP:

Construction Water Demand—The primary water uses during construction of the PPP will be for dust control and soil compaction. Estimates of usage rates are provided below.

- Average daily: 50 gallons per minute (gpm) x 4 hours = 12,000 gallons per day (gpd) (based on size of site)
- Maximum daily: 200 gpm x 10 hrs = 0.12 mgd (conservative high estimate)
- Average annual: 180 days x 12,000 gpd = 2.16 mg per year
- Maximum annual: Same as above

Operation Water Demand—As described in Section 7.1 of the AFC, operation phase water demand for the PPP is as follows:

- Average daily: 0.94 million gallons per day (mgd) (based on 61 degrees F ambient temperature)
- Maximum daily: 1.8 mgd (assumes 94 degrees F and 24 hours of duct firing)
- Average annual: 1057 acre-feet per year (ft/yr)
- Maximum annual: 1182 acre-ft/yr (assumes maximum allowable annual duct firing)

An estimate of the maximum annual quantity of potable water (backup supply) that would be used is:

- 1.26 mgd x 45 days = 57 mg per year (based on hot summer temperature conditions)

Construction Waste Water Discharge—The construction phase of Pico Power Plant Project is expected to generate the need for no, or at least very minimal, dewatering requirements. It is expected that all excavations will be above the existing water table, albeit minimally above in some local areas. Being above the local water table combined with the soil being mostly clay and sandy clay should result in no dewatering requirements except for possible stormwater collection in the excavations that was not routed to the stormwater collection system. This quantity of collected stormwater is expected to be zero or minimal resulting in one to two days of dewatering during construction. With an unusual storm year, this number could be as many as five to ten days. Under a worst-case storm scenario where all of the stormwater would be collected in excavations, the water collected from a 10-year, 24-hour storm could be pumped out over a 24-hour period at a 50-gpm rate. For the Pico project, it is expected that the potential for site dewatering will only occur over a single rain season. Therefore, the maximum daily dewatering discharge would be 72,000 gallons and, for the sake of providing a quantity, an extreme worst-case annual maximum of 0.72 mg, based on the worst-case daily amount for 10 days in a year. Water used for hydrotesting power plant piping will total be approximately 50,000 gallons.

Water used during construction for dust control and soil compaction will not result in discharge. Sanitary waste will be collected in portable toilets (no discharge). Equipment wash water will be collected and disposed of offsite.

Operations Waste Water Discharge—Operations phase waste water discharge will be as follows:

- Average daily: 184 gpm x 24 hrs = 0.26 mgd
- Maximum daily: 387 gpm x 24 hrs = 0.56 mgd
- Average annual: 0.26 mgd x 365 days = 95 mg per year
- Maximum annual: 111 mg (assuming maximum allowable duct firing)

10. Facilities (12-month process [Appendix B (g)(14)(C)(iv)]):

A description of all facilities to be used in water conveyance, treatment, and discharge. Include a water mass balance diagram.

Information required to make AFC conform with regulations:

Please provide a more complete description of all facilities to be used in water conveyance, treatment, and discharge and a discussion of the necessary modifications to the potable water system to provide backup water demand to the project.

Response—The AFC provides a complete description of the facilities used in water conveyance, treatment, and discharge (the request is not specific about the additional information needed). The only modifications necessary to the potable water system involve drilling the new well to augment the backup water supply. The well is described in the AFC, and includes appropriate backflow devices to prevent the mixture of recycled water with potable water. In addition, the project will meet the requirements of Title 22 to ensure that there is no inadvertent mixture of potable and recycled water through the preparation and approval of a Title 22 Engineers Report. Attached (at the end of this section) is a diagram of the City of Santa Clara's typical well design.

11. Drainage facilities (12-month process [Appendix B (g)(14)(D)(ii)]):

Drainage facilities and design criteria.

Information required to make AFC conform with regulations:

Please provide drainage facilities and design criteria.

Response—Appendix 7-B provides a preliminary grading and drainage plan (drawing) and a grading, drainage, runoff, and storm water computation sheet that form the basis for the drainage facilities design criteria. The drainage plan shows the direction of drainage after the project is constructed towards three drainage pipelines. Two of these lead through oil-water separators to the 54-inch storm drain in the former Pico Way. The third leads through an oil-water separator to a storm drain in Duane Avenue.

The three storm water drains would each be 15 inches in diameter RCP. For a 10-year storm, the entire site runoff was calculated to be 3.15 cubic feet per second. At the minimum slope, each pipe is capable of carrying the entire site drainage at less that 70% of each pipe's capacity. During detailed design, the expected flow for each drain will be determined; however, a 15-inch RCP is usually the minimum size used for this application.

12. Effects on other users (12-month process [Appendix B (g)(14)(E)(i)]):

The effects of project demand on the water supply and other users of this source.

Information required to make AFC conform with regulations:

Please provide the effects of project demand on the water supply and other users for the reclaimed and potable water.

Please provide the CEQA documentation for the City's new water supply well to be constructed on the project site.

Responses:

Reclaimed Water—Figure 8.15-S1 illustrates the SBWR recycled water pipeline and the location of major users (SBWR, 2001). As can be seen from Figure 8.15-S1, the PPP is situated relatively near the end of the reclaimed water supply pipeline. Partly for this reason, the likelihood is low that the project's use of recycled water will significantly degrade the availability of recycled water to other users located upstream of the project in this system.

The California State Water Resources Control Board (Office of Recycling) completed a survey of municipal wastewater reclamation in May 2000. Using information from this survey, Table 8.15-S5 summarizes the major SBWR water users and their annual water consumption. For completeness, the Metcalf Energy Center (MEC) and PPP proposed water use were added to this table. (The MEC is estimated to be open in 2003).

Based upon the reclaimed water use summarized in Table 8.15-S5, the total annual reclaimed water use (including MEC and PPP) is estimated to be 7,095 acre-feet per year (afy). PPP's projected reclaimed water usage (1,057 afy) is 15 percent of the total system usage. Consequently, it is not anticipated that PPP's use of reclaimed water will impact users with regard to volume or availability of supply.

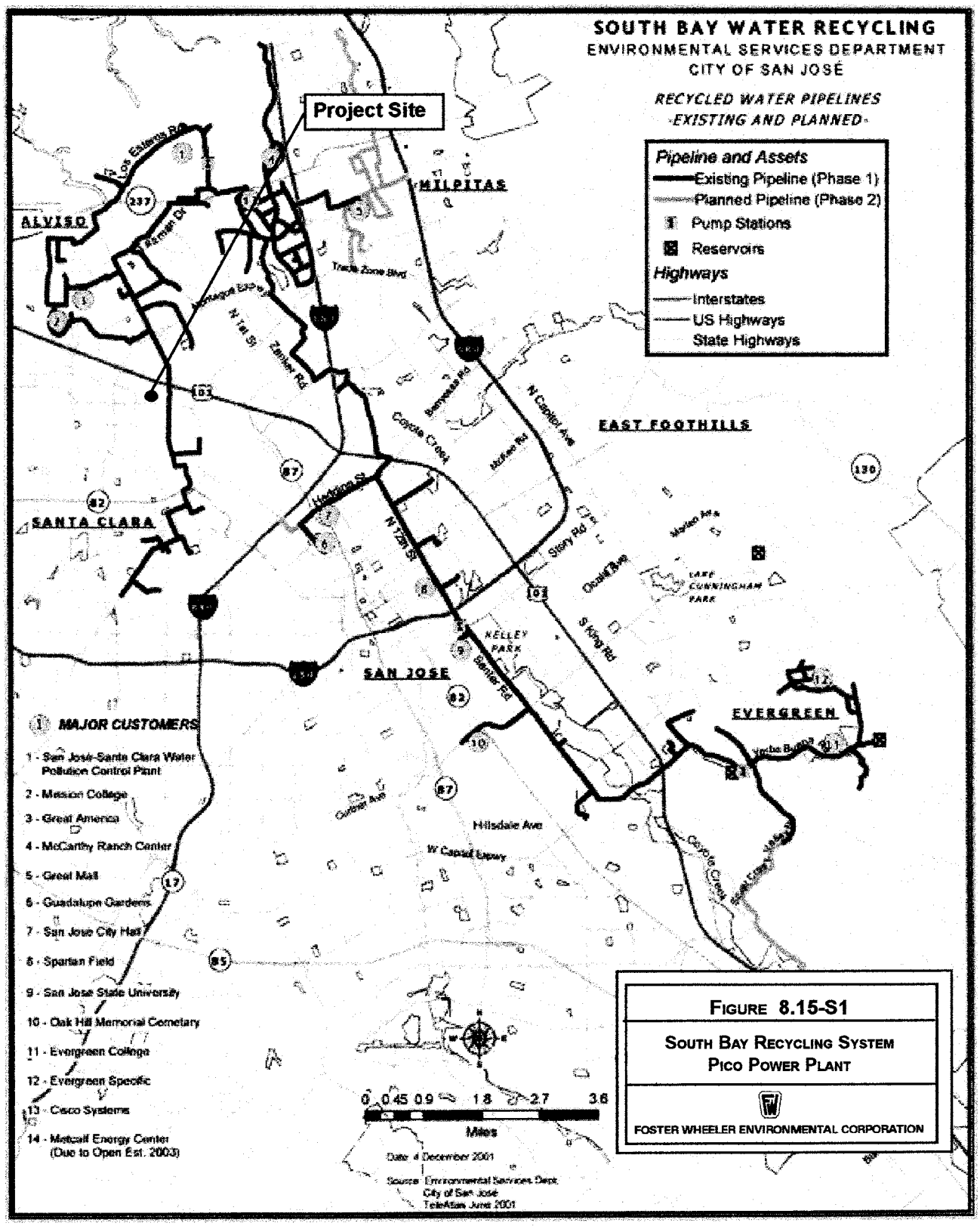

SOUTH BAY WATER RECYCLING
ENVIRONMENTAL SERVICES DEPARTMENT
CITY OF SAN JOSÉ
RECYCLED WATER PIPELINES
-EXISTING AND PLANNED-
Project Site
Pipeline and Assets
Existing Pipeline (Phase 1)
Planned Pipeline (Phase 2)
Pump Stations
Reservoirs
Highways
Interstates
US Highways
State Highways
MILPITAS
ALVISO
SANTA CLARA
SAN JOSE
EAST FOOTHILLS
EVERGREEN
Los Esteros Rd
Trade Zone Blvd
Zanker Rd
Coyote Creek
Berryessa Rd
N Capitol Ave
Hostetter Rd
Hedding St
N 7th St
Story Rd
Oakhill Dr
Lake Cunningham Park
S King Rd
Kelley Park
Senter Rd
Hillsdale Ave
W Capitol Expwy
Curtner Ave
MAJOR CUSTOMERS
1 - San Jose-Santa Clara Water Pollution Control Plant
2 - Mission College
3 - Great America
4 - McCarthy Ranch Center
5 - Great Mall
6 - Guadalupe Gardens
7 - San Jose City Hall
8 - Spartan Field
9 - San Jose State University
10 - Oak Hill Memorial Cemetary
11 - Evergreen College
12 - Evergreen Specific
13 - Cisco Systems
14 - Metcalf Energy Center (Due to Open Est. 2003)
0 0.45 0.9 1.8 2.7 3.6
Miles
Date: 4 December 2001
Source: Environmental Services Dept. City of San Jose TeleAtlas June 2001
FIGURE 8.15-S1
SOUTH BAY RECYCLING SYSTEM
PICO POWER PLANT
FOSTER WHEELER ENVIRONMENTAL CORPORATION

Table 8.15-S5. South Bay Water Recycling customers and reclaimed water use[1].

Reclaimed Water User	Type of Use	Annual Use (AF)
Metcalf Energy Center	Cooling tower makeup water	3,249 [2]
Pico Power Project	Cooling tower makeup water	1,057
Miscellaneous Landscape – 147 sites	Landscape Irrigation	853
Oak Hill Memorial Park	Landscape irrigation	401
Various schools, college – 10 sites	Landscape irrigation	296
Various parks, athletic fields –19 sites	Landscape irrigation	231
Santa Clara Golf and Tennis Club	Landscape irrigation	218
San Jose Municipal Golf Course	Landscape irrigation	195
The Villages Golf and County Club	Landscape irrigation	137
Various cooling towers – 2 sites	Cooling tower make-up water	117
Golf driving ranges – 2 site	Landscape irrigation	86
California Paperboard	Paper Manufacturing	85
Various roadway medians, greenbelts – 10 sites	Landscape irrigation	64
San Francisco 49ers Training Facility	Landscape irrigation	35
Silver Creek Valley Country Club	Landscape irrigation	28
Great America Theme Park	Landscape irrigation	17
Various Landfills – 2 sites	Dust control, compaction	16
Freeway: Route 237	Landscape irrigation	8
Cisco Systems	Toilet flushing	2
Total Reclaimed Water Use		7,095

1. Data obtained from the California State Water Resources Control Board, Office of Water Recycling, Municipal Wastewater Reclamation Survey, May 24, 2000.
2. Metcalf Energy Center SBWR reclaimed water use estimated from Metcalf Energy Center AFC, Volume 1 (June, 1999).

Potable Water—The PPP will use water from a new on-site well if necessary as a backup cooling water supply in the event that the recycled water is for some reason unavailable. We estimate that the maximum expected PPP demand for backup supply will be 45 days per year. To calculate the maximum water usage, the plant water requirements for a hot summer day (1.26 million gallons per day (mgd)) were multiplied by the maximum number of days backup water will be required (45). Under this scenario, a maximum of 57 million gallons per year (mgy) of backup water would be consumed by the PPP.

The City of Santa Clara uses 8,760 mgy of potable water to meet City requirements (City of Santa Clara, 2002). PPP's proposed maximum potable water use of 57 mgy equates to 0.65 percent of the total potable City water consumption. Consequently, the use of potable water for backup supply will not have an impact on other potable water users.

CEQA—The Applicant is exploring options with the City of Santa Clara regarding the review under CEQA of a new well to provide backup cooling water for the project. The City routinely conducts reviews under CEQA for new wells installed that would contribute to the City's potable water supply.

13. 100-year floodplain (12-month process [Appendix B (g)(14)(iii)]):

The effects of the project on the 100-year floodplain or other water inundation zone.

Information required to make AFC conform with regulations:

Please provide the effects of the project on the 100-year floodplain or other water inundation zone.

Response—As the AFC states (Section 8.15.1.3, page 8.15-9), the project and its linear appurtenances and construction laydown and worker parking areas lie outside of the 100 year floodplain and also outside any areas of coastal or tidal flooding hazards. This is also depicted on AFC Figure 8.15-3. The project will have no effect on the 100-year floodplain or any other water inundation zones, during construction or operation.

14. LORS conformance (12-month process [Appendix B (h)(2)]):

A discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A)

Information required to make AFC conform with regulations:

Please provide a discussion of the conformity of the project with the requirements listed in subsection (h)(1)(A).

Response—Section 8.15.6 of the AFC discusses the applicable LORS and provides substantial evidence that the project will not have a significant adverse effect on the environment and will comply with all applicable LORS. This section discusses potential construction and operation impacts in detail, proposes specific erosion control measures, and concludes that any project effects will be below the level of significance. Table 8.15-S1, above, includes this information and additional information regarding the mitigation measures we propose as well as specific statements regarding the effectiveness of these measures, the individual permits required, agencies, and their schedules and requirements.

References Cited

City of Santa Clara. 1996. City of Santa Clara, City Code, Rules and Regulations, Sewers and Sewage Disposal, September 1996

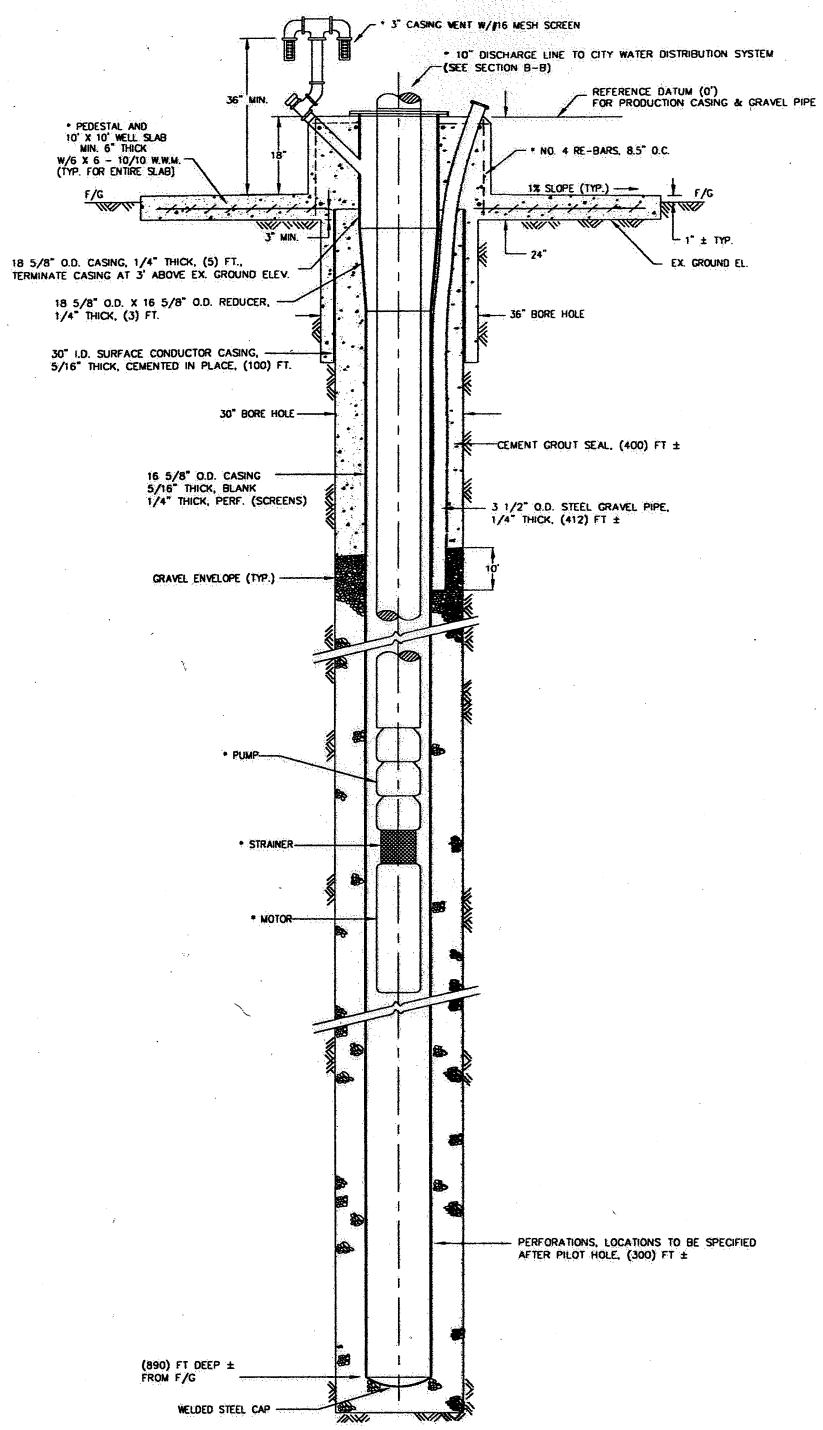
City of Santa Clara. 2002. City of Santa Clara, 2002 Water Master Plan. City of Santa Clara Water Department, Robin G. Saunders, Director, Santa Clara, CA 95050

San Francisco Regional Water Quality Control Board (SFRWQCB). 1995. San Francisco Bay Basin (Region 2) Water Quality Control Plan. California Regional Water Quality Control Board, San Francisco Bay Region. June 21, 1995.

SFRWQCB. 2002. A Comprehensive Groundwater Protection Evaluation for South San Francisco Bay Basins, Draft for Stakeholder Review. Prepared by the Groundwater Committee of the California Regional Water Quality Control Board, San Francisco Bay Region. December 2001.

SBWR. 2001. South Bay Water Recycling, Recycled Water Pipelines, Existing and Planned. Environmental Services Department, City of San Jose.

TYPICAL CITY OF SANTA CLARA
GRAVEL ENVELOPE WELL DESIGN

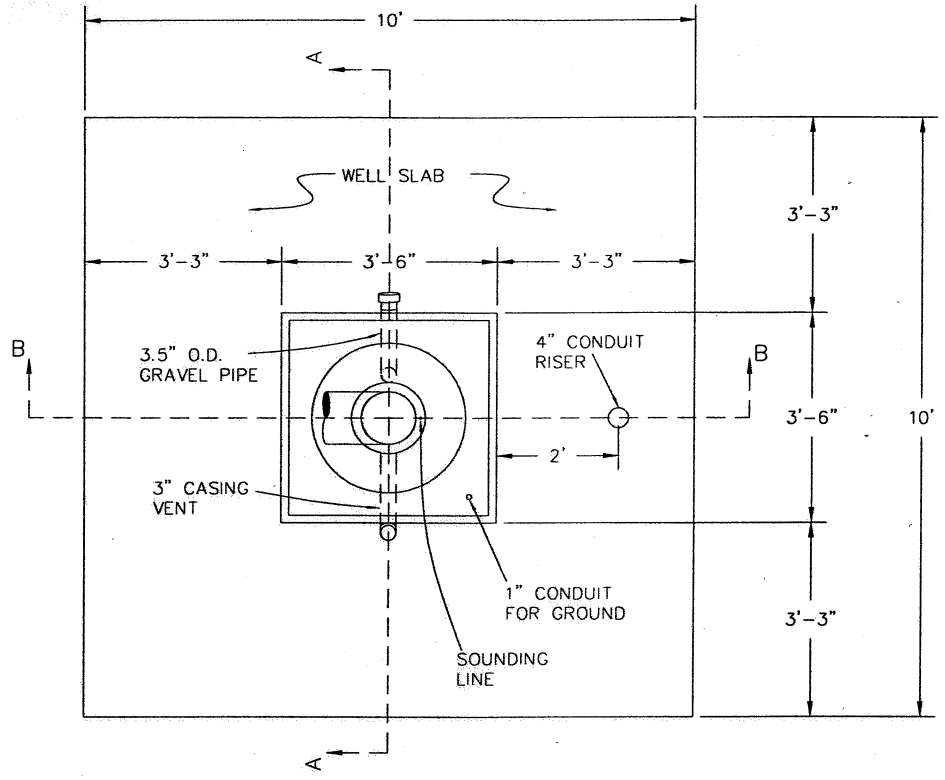


SECTION A-A
(N.T.S.)

TYPICAL GRAVEL ENVELOPE WELL

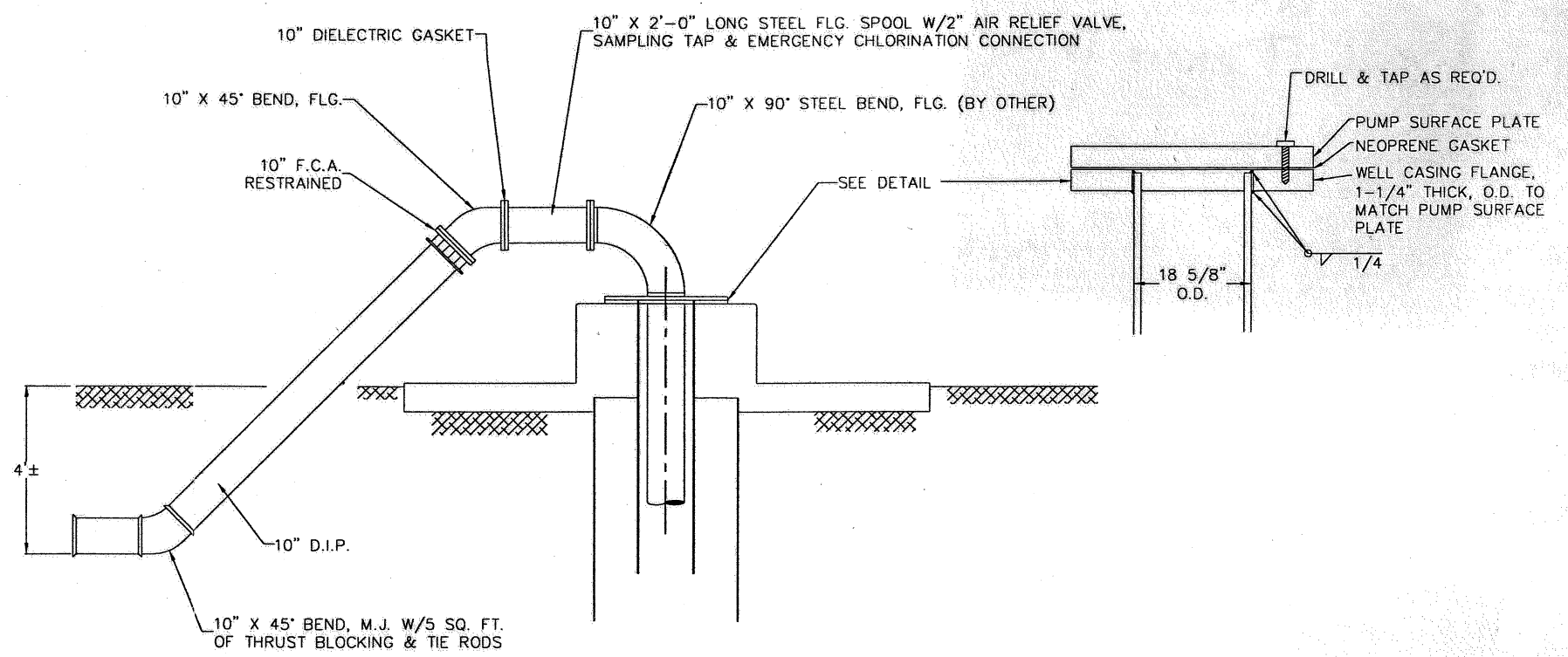
NOTES:

1) CONSTRUCTION OF PUMP PEDESTAL & WELL SLAB & ITEMS MARKED WITH AN * TO BE PERFORMED BY CITY OF SANTA CLARA PER APPLICABLE STATE OF CALIFORNIA D.O.H.S. STANDARDS, AFTER CONSTRUCTION OF WELL.
2) TOP OF PRODUCTION CASING AND GRAVEL PIPE SHALL BE SITUATED AT TWO(2) FEET ABOVE EXISTING GROUND ELEVATION.
3) NO KNOWN SEWERS, SEPTIC TANK OR LEACH FIELDS ARE WITHIN 100' OF THE WELL.



PLAN VIEW
(N.T.S.)

PUMP PEDESTAL & WELL SLAB



SECTION B-B*
(N.T.S.)